



BBA Conference 2022

“Facing the Future”

4th – 6th May 2022

Royal Marriott Bristol

Organised by the Bristol Burns Services

CPD points awarded from BAPRAS:

Wednesday 4 May 2022 – 6.5 points

Thursday 5 May 2022 – 7 points

Friday 6 May 2022 – 5.5 points



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Welcome from the Local Organising Committee

Dear Delegates,

The Bristol Burns Services would like to extend you a very warm welcome to our fantastic city and to the British Burns Association annual conference 'Facing the Future'.

We hope you will enjoy the wide variety of presentations, free papers and posters and the fantastic speakers who bring a wealth of knowledge and experience. We also hope you will enjoy networking with your colleagues who you may not have seen face-to-face for some time.

We have lined up for you a west country drinks reception and a fantastic gala dinner at Bristol Museum where we will test your knowledge of Bristol and hope you will put on your dancing shoes and enjoy the music from the Stereo Jacks.

Please make sure you visit the trade stands in the exhibition areas and view the posters on the big screens. There will be a chance to ask questions about posters that have piqued your interest, check your timetable for days and times.

We have tried to be considerate where possible to our environment so this year there is no printed conference books or posters and we have reduced any single-use items where we can.

We hope the next three days will be interesting, educational, reflective, thought provoking, and fun.

BBA Board of Trustees

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Preetha Muthayya – Doctor Designated Member

Co-opted

Ascanio Tridente - Intensivist Designated Member

Major Events

AGM

Thursday 5th May at 12:30

Wallace Lecture

Thursday 5th May at 14:00

Special Interest Groups (SIGs)

Wednesday 4th May – 12:35

- Nurses – Windsor

Thursday 5th May – 08:00 or 13:15

- Psychosocial – Windsor Room
- Burns Camp – Windsor Room
- Research – Kings Suite

Social Functions

Drinks Reception: Wednesday 4th May – The Royal Marriott Hotel, Palm Bar from 18:00-19:00.

Conference Dinner: Thursday 5th May – Bristol Museum and Art Gallery from 19:00, Drink reception from 19:00-19:45 and dinner at 20:00. **Ticket holders only.**

Invited Speakers

Session – Welcome to Bristol and Opening talks (Wednesday 4th May)

Lord Lieutenant Peaches Golding – Welcome to Bristol

Mrs Peaches Golding was appointed HM Lord-Lieutenant of the County and City of Bristol in 2017 and will serve as Her Majesty's personal representative until her 75th birthday. Mrs Golding is the independent chair of the Bristol Water Customer Challenge Panel, non-executive consultant of Moon Consulting Ltd, and a Trustee of the SS Great Britain and of Bristol Zoological Society. Mrs Golding's board experience spans the health, media and education sectors. She was awarded the OBE in 2009 for services to minority ethnic people in the South West and awarded an honorary MBA by the University of the West of England (UWE) in 2010, a Doctorate of the University by UWE in 2017 and a Doctorate of Letters by the University of Bristol in 2018. She is an Honorary Captain of the Royal Naval Reserves and President of the affiliation between Bristol and HMS PRINCE OF WALES. She was graduated from the University of North Carolina, Chapel Hill, USA with a Biology degree. She was married to the late Bob Golding and has an adult son, Charles.

Mr Jonathon Pleat MA DPhil FRCS(Plast) - What makes Bristol 'gert lush'?

Jon Pleat is a burn and plastic surgeon in Bristol. He is a past service lead for the adult service at Southmead Hospital and the paediatric service at Bristol Royal Hospital for Children. He is an Honorary Senior Lecturer at The University of Bristol. He was a founding author of GPnotebook, now in its 32nd year, an online encyclopaedia of medicine that is one of the most widely used resources for UK doctors. He is a past Director of Research for the scarring charity, Restore, and a member of the steering group for The Centre for Appearance Research at The University of The West of England. He is Chairman of The Skin Cancer Research Fund, one of the oldest medical research charities in the UK. His DPhil focused on the molecular biology of scarring and his current research includes: KelS, an international keloid study; OptiThermm, an international study to optimise thermal stability after major burns; and ELABS, a national, multicentre study to assess the effect of early pulsed dye laser after burn injury. He is a member of the international steering group of the POSAS 3.0 scar scale. No longer able to keep a dancefloor moving as his alter ego 'DJ-DiJon', he instead baffles his trainees with obscure questions about popular music!

Colonel Alan Kay - Where we were, where we are and where might we go?

Alan Kay is a Consultant Burns & Plastic Surgeon. His Higher Specialist Training was in Bristol, Manchester and Sydney. He was appointed as Consultant in Bristol in 1998 and then moved to Birmingham in 2009 in response to the increasing military workload. He remains at the Royal Centre for Defence Medicine delivering his clinical duties for the Burn Centre at Queen Elizabeth Hospital, Birmingham.

Session – Pre-Hospital (Wednesday 4th May)

Dr Paddy Morgan - Burns incident: Pre-hospital response” – The future is now!

Paddy is a Consultant Anaesthetist in Southmead Hospital, (Bristol), with a special interest in Major Trauma, drowning, and burns. These interests extend to his pre-hospital roles as a Pre-hospital Critical Care Doctor with Great Western Air Ambulance, and the Emergency Medical Retrieval and Transfer Service (EMRTS) Cymru. He is Medical Director to several national organisations and commercial entities providing medical care in remote and/or austere conditions including the renewable and offshore energy industry, and the maritime sector. In addition he is an advisor to national and international medical advisory committee: International Lifesaving Society (ILS) medical advisory committee; International Drowning Research Alliance; UK Search And Rescue (UKSAR) medical advisory group; and several other government agencies and emergency service bodies. His current research interests include cold water immersion and drowning with the Extreme Environment Laboratory at the University of Portsmouth, where he is also an Independent Medical Officer.

Mark Kinsella - Burns incident: Pre-hospital response” – The future is now!

Mr. Mark Kinsella. Bristol based Specialist Paramedic in Critical Care with Great Western Air Ambulance Charity. I have been a Paramedic for 12 years including 3 years in the Hazardous Area Response Team. I have had a long standing interest in treating the burns patient after a number of difficult cases early in my career. I was a member of the prehospital special interest group for the British Burns Association before leaving for personal reasons. I am passionate about prehospital care, particularly for patient groups that are classically considered challenging. On a personal level I live in South Gloucestershire with my wife and 2 young children. I enjoy woodwork, gardening, reading and swimming.

Dr Owen McIntyre - Burns incident: Pre-hospital critical Care and Transfer

Consultant Anaesthetist at Morriston Hospital, Swansea, working since 2010 in Burns Anaesthesia and Critical Care. Consultant with the Emergency Medical Retrieval and Transfer Service (EMRTS) Cymru, the Pre-hospital Critical care service for Wales since its inception in 2015

Dr Alistair Gales - Burns incident: Pre-hospital critical Care and Transfer

Anaesthetic Registrar currently working at the Welsh Centre for Burns at Morriston Hospital, Swansea. Interest in pre-Hospital Medicine and Burn care. Currently involved in Service Improvement project with Emergency Medical Retrieval and Transfer service (EMRTS) in Wales and undertaking MSc Trauma Sciences at Queen Mary University London undertaking dissertation into pre-hospital fluid management in severe burns.

Dr Phil Cowburn MBE - Burns incident: The big bang, weird and wonderful

Consultant in Emergency Medicine & Prehospital Care

***Session - Putting out the fire in the burn- how cooling reduces the severity of human burns
(Wednesday 4th May)***

Edmund Hugh Wright

I have been appointed recently as a locum consultant in Plastic and Hand Surgery at Leeds Teaching Hospitals. My interests include adult elective and trauma hand surgery, lower limb trauma, skin cancer, and vascular malformations. Prior to this I trained in Plastic and Hand Surgery in Oxford and Manchester deaneries, and completed Hand Surgery fellowships in Sheffield and Leeds, and have completed the BSSH Diploma in Hand Surgery. Between 2012 and 2016 I carried out a laboratory-based research DPhil at the Weatherall Institute of Molecular Medicine in Oxford, and at Stoke Mandeville Hospital in Aylesbury, Buckinghamshire, investigating the effects of cooling on human burns. This work was supported by Restore Burn and Wound Research (Duke of Kent Fellowship), the Royal College of Surgeons of England 1-Year Research Fellowship (Enid Linder Fellowship) and by the British Association of Plastic, Reconstructive and Aesthetic Surgeons (Paton-Masser Prize). The work has been presented in part at BAPRAS, BBA, SARS and the ISBI, and has been awarded the Douglas Murray Prize (2017), the Jackson Prize (2018) and a Hunterian Lectureship (2019, presented 2021), and been published in Burns and the British Journal of Surgery. Outside clinical work, I am an ATLS instructor and a reviewer for JPRAS and BJS. In my spare time, I enjoy hillwalking, climbing and ultra running with my wife, and have completed Ironman triathlons, and ultramarathons including the Montane Spine Race as fundraiser for the Ectopic Pregnancy Trust

Session – Patient Journeys – Thursday 5th May

Mr David Richards - Success of an adult major trauma patient

Laura Masters - Paediatric burn survivor story

Session – Wallace Lecture (Thursday 5th May)

Professor Nichola Rumsey OBE - When the Going Gets Tough. How to Boost Your Psychological Wellbeing: A ‘Bootcamp’ for Burn Professionals’

Nichola is Professor Emerita of Appearance Psychology at the University of the West of England, Bristol, UK. She founded the Centre for Appearance Research at UWE in 1992 and was its Co-Director until 2017. Nichola has an international reputation for research into the psychology of visible difference, was designated ‘World Leading Expert’ in the field by RCS (Scotland) in 2004 and appointed Officer of the British Empire (OBE) in 2016 for services to people with disfigurement. She has attracted in excess of £7m in research funding and has published widely in the field. She was Chair of the EU funded COST Action IS1210 “Appearance Matters” (a network of researchers and practitioners from 35 European countries) from 2013-2017. Nichola has been a long-term advocate of the inclusion of psychologists in burn teams. She was a member of The National Burn Care Review Psychosocial Committee 2005-2008 and worked as a Consultant to the UK Government’s Department of Health 2004-2010. Since her retirement from UWE in 2017, Nichola continues to participate in EU-funded projects and to work as a Consultant Psychologist. She is currently developing training in resilience for children and families affected by cleft and clinical aids

designed to improve standards of patient care in the cosmetic and reconstructive plastic surgery sectors in Australia, Europe and the UK.

Session - Management of Self-Harm Burns Injuries (Thursday 5th May)

Dr Grace Harris

Dr Grace Harris is a speciality doctor working within the Southmead Hospital, Mental Health Liaison team.

Dr Laura Shepherd

I am a Consultant Clinical Psychologist and HEE/NIHR Clinical Doctoral Research Fellow working at Nottingham University Hospitals NHS Trust. I have been part of the adult burns team since 2009 and I also work in the cleft lip and palate service. I have previously worked in the areas of major trauma, chronic pain and sexual health/HIV. My clinical interests include psychological adjustment and difficulties associated with a visible difference/change in appearance, post-traumatic stress reactions, and understanding how challenging cases are experienced by teams through the application of psychological theories. My current research involves exploring the role of psychological variables in the development of appearance-related distress after burn injuries. I have previously researched and been involved in projects in the area of self-harm burn injuries.

Session - Resilience is Between Us, Not Just within Us – Supporting team wellbeing and effectiveness (Thursday 5th May)

Dr Olivia Donnelly

Dr Olivia Donnelly is a Consultant Clinical Psychologist and leads the Staff Wellbeing Psychology Team at North Bristol NHS Trust, which includes a dedicated NHS wellbeing service for doctors. She has a particular interest in practical, values-based approaches to promoting psychological safety within teams and across healthcare organisations, based on the foundation that 'resilience is between us, not just within us'. You can follow Olivia on twitter @Dr_O_Donnelly

Session - Succession and Retention across the burns MDT (Friday 6th May)

Chris Wearn

Chris Wearn is an ST8 Plastic Surgery Trainee in the South West training programme who is currently undertaking a one-year burn fellowship at the ABA Verified Adult Burn Service at the Royal Adelaide Hospital, Australia. He has had a longstanding interest in Burn care and burns research and gained a PhD from the University of Birmingham in 2017 for his thesis on the 'Metabolomic response to severe thermal injury'. He is passionate about advancing the field of burn care through collaborative research and regularly engages in burn care education with medical students, nursing staff, doctors and allied health professionals, including simulation based training.

Julia Sarginson

Julia is a Plastic Surgery Trainee in the South-West Deanery with a special interest in burn care. Prior to higher surgical training, Julia was the surgical research fellow for the Scar Free Foundation Centre for Paediatric Burns Research. She completed her PhD at the University of Bristol where the focus of her research was describing the inflammatory response to burns in children. Julia is very active in burn care education and teaches on medical and nursing postgraduate courses, on the EMSB course and provides ad hoc teaching for emergency and pre-hospital organisations.

Shirin Pomeroy

Shirin Pomeroy is a Burns Clinical Nurse Specialist and Lead Nurse for the Bristol Children's Burn Centre since 2007. She has worked in the specialism for 21 years and in so doing has seen the service evolve and diversify during this time. Shirin has led in the development of a children's burns nursing outreach service and the recruitment of additional roles within the team of service co-ordinator, rehabilitation assistant, data entry clerk and lead burns research nurse. Since 2009 to the present, Shirin has developed, delivered and enhanced a University of the West of England (UWE) degree and masters level accredited Burns CPD module for nursing and AHP staff. This course is currently fully online awarding 40 credits towards advanced or specialist practice programmes. She also led the education stream of the Children's Burns Research Centre from its inception until 2015, and now continues to provide Burns teaching to various staff groups within the hospital. She supported the service lead in the Burns service transfer to its current home at the Bristol Royal Hospital for Children in 2014. Shirin considers herself a keen advocate for Burns and the Burns MDT within a busy tertiary children's hospital.

Session - Priority setting in international burn care research (Friday 6th May)**Dr Amber Young**

Dr Young has been a consultant burns anaesthetist in Bristol since 1999. She was clinical lead at the Children's Burn Centre, paediatric lead for the South West Burn Network and British Burn Association Chair until 2016. She won (2020) a four-year NIHR Fellowship to achieve a Core Outcome Set for consistent reporting of burn care outcomes. In 2021 she achieved a NIHR Advanced Fellowship for a five year project to prioritise burn research and undertake a registry based burn trial.

Session - The Engine Room - Secrets of world-leading burns research teams (Friday 6th May)**Dr Zephania Tyack - Brisbane**

I am a Senior Research Fellow in Implementation Science at the Australian Centre for Health Services Innovation, Queensland University of Technology where I lead a team of four implementation scientists. My research focuses on work with families and health professionals to develop and evaluate health interventions for burn care and trauma that support clinical decision making, communication, and health-related quality of life. I have special interest in simultaneously investigating the effectiveness and implementation of burn interventions in areas of pain, skin scarring, and trauma. I currently lead research evaluating the routine use of information from

electronic patient-reported outcome measures in clinical practice to improve communication and decision-making in burn scar rehabilitation. I also oversee projects investigating laser and needling interventions for burn scarring and patient experiences of burn scar interventions. The ultimate aim of my research is to fast track the implementation of research evidence into clinical practice and improve the health-related quality of life and well-being of children and their families. I try to do this by working closely with burns and trauma teams, involving patients in my research, and following in the footsteps of great leaders around me.

Celeste Finnerty - The Galveston Burn Research Experience

Dr. Finnerty is recognized as a leader in burn research, with 19 years of experience in the field, 165 peer-reviewed manuscripts, 17 book chapters, and awarded grants totaling more than \$12 million; during this time, she has led numerous studies centered about human, animal, and cell culture investigations with diverse groups of investigators. With funding from the U.S. Department of Defense, the National Institutes of Health, and other organization, her work has included investigations that will ultimately improve burn patient outcomes, addressing burn wound healing/scarring, biomarkers for clinical trajectories, and post-burn organ dysfunction.

Karen Coy - The Scar Free Foundation Centre Bristol for Paediatric Burn Research.

I have worked in Paediatric Burns for almost 20 years and been involved in research for 15 years. I graduated from Nottingham University in 2003 with a Master's degree as a qualified Children's Nurse. After many years of working as a senior nurse on the wards I had the opportunity to use my knowledge and skills to spend some of my time being a key part of developing the Children's Burns Research Centre. I have taken on the lead nurse role where I have supported all aspects of the research team to deliver studies as well as leading my own projects. I have presented at numerous burns conferences and have been lead author and co-author on many scientific reviewed papers. I have also collaborated on successful competitive grants, developing protocols, patient materials and the finances for the grants. During my time have mentored students in nursing and medicine as well as being orchestral in developing research careers for nurses and non-clinical research support staff.

Session - Research - highlights of the year in the key journals (Friday 6th May)

Professor David Herndon - The Journal of Burn Care and Research

Forty years as cited of burn service at the University of Texas Medical branch and chief of staff of Shriners Burn Hospital in Galveston Texas. Published over 100 articles hundreds of book chapters. Editor of the textbook to toted burn care in the its six edition of the journal of burn care and research.

Professor Steven Wolf - What's new from the journal Burns

Dr. Wolf is an internationally-renowned clinician and researcher in burns, trauma, acute care surgery, and surgical critical care. His 31 year experience in these fields is comprehensive, leading many innovations and repeatedly improving the standard of care worldwide. He currently serves as a tenured Professor, Vice-Chair for Strategic Planning, and Division Chief for Burns, Trauma, and Critical Care in the Department of Surgery at the University of Texas Medical Branch in Galveston

TX, USA. He has over 425 published research articles in such journals such as the New England Journal of Medicine, Lancet, and Annals of Surgery and is the 4th most cited author in the history of his field while maintaining a full-time clinical practice in caring for those who are burned, injured, or critically ill. He also serves as the Editor-in-Chief for Burns, the recognised leader in its field, a post he has held for 18 years. He has been invited to speak around the world in Mexico, Brasil, Argentina, Norway, England, Scotland, Ireland, France, Germany, Poland, Austria, Switzerland, Turkey, China, India, Japan, Singapore, Vietnam, South Korea, Thailand, Indonesia, Australia, and New Zealand to discuss his work. He recently served as the President of the American Burn Association, and is currently the President-elect of the International Association for Surgical Metabolism and Nutrition.

Sponsored Symposia

Wednesday 4th May – 13:00-13:30

PolyNovo Sponsored Symposium - Biodegradable temporising matrix: applications in burn care & beyond

Christopher J. Lewis, Consultant Plastic Surgeon, Royal Victoria Infirmary

Dermal substitutes have become common use for soft tissue reconstruction for a variety of pathologies ranging from burns, skin cancer reconstruction as well as traumatic injuries. Previously used when skin paucity was the main issue, their directive now extends to consideration of its use when cosmesis and functional robustness is a driving factor.

One such dermal substitute is biodegradable temporising matrix (BTM, Polynovo). BTM is a bilaminar fully synthetic dermal matrix consisting of a biodegradable polyurethane foam and an outer silicone membrane designed for two stage reconstruction. First used clinically in 2012 for a debrided pressure sore, it has since gone on to demonstrate its versatility and utility in the management of a variety of complex wounds. Herein, the author presents his experience of BTM for acute burn care and reconstruction in the UK and Australia and showcases its versatility and spectrum of use in other wounds, together with pearls and pitfalls.

Programme of Events

Wednesday 4th May

09:00	Registration & Coffee	
10:00	Opening Ceremony BBA Welcome What makes Bristol ‘gert lush’?	Chair - Jon Pleat / Catalina Estela Lord Lieutenant Golding Jon Pleat
10:30	Where we were, where we are and where might we go?	Alan Kay
11:15	Free papers – Session 1 Disaster preparedness in resource-constrained settings - The Freetown Oil Tanker Explosion - St James Hospital Dublin	Chair – Alan Kay / Lorna Burrows Virtual Chair – Shirin Pomeroy
11:25	The Impact of Clinical Feedback on Burn Injury Retrieval - Royal North Shore Hospital	
11:35	Flood the field or Block the field?: Fascia iliaca block vs local anaesthetic infiltration for thigh donor site pain in burns patients - Mid and South Essex NHS Foundation Trust	
11:45	Surgical simulation training for escharotomy: a novel course, improving candidate’s confidence in a time critical procedure - Morriston Hospital	
11:55	Early results and initial experience of reconstructing defects with NovoSorb® Biodegradable Temporising Matrix: a UK case series - Queen Victoria Hospital NHS Foundation Trust, East Grinstead	
12:05	SARS-CoV-2 national lockdown and self-inflicted burns: our experience in a single regional burns centre - St Andrew’s Centre for Plastic Surgery and Burns	
12:15	Steam inhalation: highlighting inconsistencies between literature and NHS patient information - Mersey Burns Centre, Whiston Hospital	
12:25	Paediatric resuscitation burns maintenance fluid selection - A retrospective review of cases and adherence to NICE, LSEBN and EMSB guidelines - Kings College Hospital – (VIRTUAL)	
12:35	Lunch / Exhibitors / Posters (Session1)	
12:35	Nurses SIG Meeting	Windsor Room
13:00	PolyNovo Sponsored Symposium Biodegradable temporising matrix: applications in burn care & beyond	Christopher J. Lewis, Consultant Plastic Surgeon, Royal Victoria Infirmary
13:30	Pre-hospital: “Burns incident: Pre-hospital response” – The future is now!	Chair – Sankhya Sen/Natasha Clarke Virtual Chair – Shirin Pomeroy Dr Paddy Morgan / Mark Kinsella
14:10	“Burns incident: Pre-hospital critical Care and Transfer	Dr Owen McIntyre / Dr Alistair Gales
14:50	“Burns incident: The big bang, weird and wonderful”	Dr Phil Cowburn MBE
15:30	Panel Discussion and Questions	
15:50	Coffee / Exhibitors and Posters (session 2)	
16:20	Putting out the fire in the burn- how cooling reduces the severity of human burns	Chair – Sankhya Sen/Natasha Clarke Virtual Chair – Shirin Pomeroy Mr Edmund Hugh Wright
16:50	Free Papers – Session 2 Cadaveric Allograft – a potential source of filamentous fungi cross contamination and infection in burn patients? - Whiston Hospital	Chair – Sankhya Sen/Natasha Clarke Virtual Chair – Shirin Pomeroy

17:00	Managing a mupiricin- resistant, methicillin-resistant staphylococcus aureus (MRSA MLST8) outbreak in the burn's unit - Mid And South Essex NHS Trust	
17:10	Case study: A novel surgical treatment of infective endocarditis in burned patients - St James Hospital, Dublin	
17:20	Implementation of the adult burn's patient concerns inventory (PCI-B) at a regional burns centre - Mersey Burns Centre, Whiston Hospital	
17:30	Impact of inhalation injury on outcomes in critically ill burns patients: 12-year experience at a regional burns centre - University Hospitals of Leicester NHS Trust	
17:40	Retrospective analysis of first aid in paediatric burns: are caregivers getting it right? - Chelsea and Westminster Hospital	
17:50	Adaptations of The SafeCare Nursing Tool to Fit Specialist Burns Nursing Requirements - Chelsea and Westminster / LSEBN	
18:00	Close	
18:00	Drinks Reception and entertainment in the exhibitors Hall	

Thursday 5th May

08:00	Registration & Coffee	
08:00	Psychosocial SIG Meeting	Windsor Room
09:00	Free Papers – Session 3 Clinical photography in burns care using a secure messaging app – a three-year service evaluation and patient satisfaction survey. Buckinghamshire Healthcare Trust – (VIRTUAL)	Chair – Ian Mackie & Rachel Wiltshire Virtual chair: Sharon Standen
09:10	Combination laser treatment of post-burns scarring: a revolution in care and our 21 years' experience - St. Andrew's Centre for Burns and Plastic Surgery, Broomfield Hospital, Chelmsford	
09:20	Pyrexia in association with scald injuries in the under 5's - Alder Hey Children's Hospital	
09:30	Laser Doppler Imaging – Is Poor Perfusion an Accurate Predictor of Healing Time? St Andrew's Centre for Plastic Surgery and Burns - Broomfield Hospital, Chelmsford, UK	
09:40	Development of a treatment pathway for enzymatic debridement in cutaneous burns: a single centre experience - Queen Victoria Hospital	
09:50	Nurse dependency in burn care – Can it be predicted? - Birmingham City University	
10:00	Patient Journeys Success of an adult major trauma patient	David Richards Maira Babar
	Paediatric burn survivor story	Laura Masters
11:00	Coffee Exhibitors and Posters (session3)	
11:30	Free Papers – Session 4 Future Changes: developments from patient reported experience of an Adult Burns Clinic - North Bristol NHS Trust	Chair - Nicky Mackey / Ollie Sawyer Virtual chair: Sharon Standen
11:40	Validation of the Burnt Hand Outcome Tool (BHOT): a patient led questionnaire for adults with hand burns - St Andrew's Centre for Burns and Plastic Surgery, Chelmsford.	
11:50	From surviving to thriving my rehabilitation journey - The Katie Piper Foundation.	
12:00	The role and effectiveness of remote video consultations in burns management – a single-centre experience - Wallace Burns Unit, St John's Hospital, Livingston	
12:10	Helping you to Heal: Developing a burns specific model of patient/ family education and support for children and families after burn injury - University Hospitals Bristol and Weston NHS Trust	

12:20	Early tracheostomy and active exercise programmes in adult intensive care patients with severe burns - St Andrew's Centre for Plastic Surgery and Burns	
12:30	BBA AGM	BBA exec
13:15	Lunch/ Exhibitors / Posters (session 4)	
13:15	Burns Camp SIG Meeting	Windsor Room
13:15	Research SIG Meeting	Kings Suite – Main meeting room
14:00	Wallace Lecture <i>When the Going Gets Tough. How to Boost Your Psychological Wellbeing: A 'Bootcamp' for Burn Professionals'</i>	Chair - Yvonne Wilson and Ollie Sawyer Virtual chair: Catherine Martin Professor Nichola Rumsey OBE
15:00	Management of Self-Harm Burns Injuries	Dr Grace Harris / Dr Laura Shepherd
16:00	Coffee / Exhibitors and Posters (session 5)	
16:30	Resilience is Between Us, Not Just within Us – Supporting team wellbeing and effectiveness	Chair - Yvonne Wilson and Ollie Sawyer Virtual chair: Catherine Martin Dr Olivia Donnelly
17:30	Close	
19:00	Conference Dinner Bristol Museum	

Friday 6th May

08:00	Registration & Coffee	
09:00	Free Papers – Session 5 Effect of autologous fat transfer in acute burn wound management: A randomized controlled study - Abouqir General Hospital, Ministry of Health of Egypt	Chair - Mark Brewin & Andy Williams Virtual chair: Sharon Standen
09:10	The role of anti-factor Xa measurement in major burns: literature review and survey of UK practice - Pinderfields Hospital	
09:20	'A positive spin' - an audit of efficacy and suitability of electrospun polymer dressing in management of burns associated wounds - Queen Victoria Hospital Care	
09:30	Managing non-burn skin loss in a Paediatric Burn Centre: a 6-year experience - Birmingham Women's and Children's NHS Foundation Trust	
09:40	The use of a microbial cellulose dressing (EpiProtect®) in paediatric facial burns: a single centre experience - Broomfield Hospital	
09:50	Introduction of an enhanced venous thromboembolism protocol for adults with major burns: initial results from a regional burns centre - Mid Yorkshire Hospitals NHS Trust	
10:00	Succession and Retention across the burns MDT	Chris Wearn / Julia Sarginson / Shirin Pomeroy
10:30	Priority setting in international burn care research	Dr Amber Young
11:00	Brunch (Bacon Butties) / Posters and Exhibitors (session 6)	
11:40	Free papers- Session 6 Preoperative oral supplements to decrease peri-operative fasting duration and improve nutritional optimisation - results and proposed protocol - Lister Hospital, Stevenage	Chair – Jon Pleat / Simon Booth Virtual chair: Rebecca Johns

11:50	Burn surgery preparation and prophylactic antibiotics: an international perspective - St Andrew's Centre for Plastic Surgery and Burns Care	
12:00	Are acute burn injuries associated with long-term mortality? A systematic review and meta-analysis - University Hospitals Birmingham NHS Foundation Trust	
12:10	The effect of respiratory comorbidities and smoking on major burns with inhalation injuries: A 10-year review of outcomes at a UK Burns Centre - Burns and Plastics Department, Pinderfields Hospital	
12:20	The Engine Room - Secrets of world-leading burns research teams" Brisbane The Galveston Burn Research Experience	Dr Zephania Tyack
12:35		Celeste Finnerty , PHD associate professor
12:50	The Scar Free Foundation Centre Bristol for Paediatric Burn Research.	Karen Coy
13:05	Questions to the group	
13:20	Research - highlights of the year in the key journals:	
	'The Journal of Burn Care and Research'	Professor David Herndon
13:40	What's new from the journal Burns	Professor Steven Wolf
14:10	Questions to the group	
14:30	Presentations & Close	Andrew Williams
15:00	Close	

Poster List

P1	Tracy	Foster BEM	First aid in hospital prime area
P2	Kajal	Gohil	Re-assessing firework regulations to manage Burns Service demand
P3	Helen	Capitelli-McMahon	After freedom comes pain: Increasing firework injuries at a regional burns centre following the lifting of COVID-19 restrictions
P4	Parvathi	Varma	The 'Squid Game' Dalgona Candy Craze: the latest trend to cause burn injuries
P5	Laura	Cappuyns	Giant Hogweed: The role of burns professionals in public health awareness and strategies to prevent burns
P6	Lindsay	Shanks	Mulled alcohol: an under-reported cause of burns during the festive period
P7	Salih	Salim	High serum Iodine levels in a patient with severe burn injury
P8	Lindsay	Shanks	Chemical burns from cosmetic products: a paediatric case series
P9	Kwang Chear	Lee	*RUNNER UP - BEST POSTER (Prevention)* Honeycomb burns: the good and the bad of social media
P10	Parisha	Malik	An 11-year review of sunburn injuries presented to the paediatric specialist burn services
P11	Ezekwe	Amirize	Self-inflicted burns: 19-year experience of the Birmingham Burns Center
P12	Odhran	Shelley	Priority areas for International Burn Prevention: Oil Tanker Explosions as a Major cause of Burn Mortality
P13	Justine	Sullivan	*RUNNER UP - BEST POSTER (Care)* Avoidance of iatrogenic burn injury associated with high-alcohol chlorhexidine solutions in patients with staphylococcal scalded skin syndrome (SSSS)
P14	Nicole	Lee	*WINNER - BEST POSTER (Prevention)* Delivering A First Aid Safety Message to a TikTok Challenge in the UK
P15	Max	Prokopenko	A burning concern of tap water scalds in the United Kingdom
P16	Vicky	Dudman	Audit of burn therapists use of the LSEBN knowledge competency framework
P17	Laura	Cappuyns	The Peroneus Brevis muscle flap for distal third tibia reconstruction in burns and trauma – a non-microsurgical and expeditious technique offering rapid wound healing of a complex wound
P18	Mehitab Adel Saeed	Hussien	A patient's perspective of extravasation injury treated at a burns centre
P20	Patrick	O' Donohoe	Our experience in the use of skin allograft in the National Burns Unit for Ireland
P21	Benjamin	Wood	Tetanus Prophylaxis: Are burns patients receiving the right treatment?
P22	Veronica	Wagstaff	Has the use of Diphoterine® had a positive impact on management and outcomes of chemical injuries? The experience of our burn service.
P23	Laura	Cappuyns	Burn fluid resuscitation using Plasmalyte®: Is it a safe replacement for Ringers Lactate and what is the potential cost saving?
P25	Mohammad	Goodarzi	Experience of regional burns facility before and after the COVID-19 pandemic: a retrospective cohort analysis

P26	Dave	Booth	A Blooming Success: Green Scrubs and Green Fingers
P27	Sinmiloluwa	Oke	A service evaluation of the cosmetic camouflage service at a UK regional plastic surgery department
P28	Daisy	Ryan	Proposed opportunities in improving burns care that are available with a satellite HTA license - a single centre experience
P29	Vicky	Dudman	Therapy compliance with Burn Standard A.06 related to burn patients' return to employment
P30	Daisy	Ryan	A single centre experience of AlloSource ALLOSKIN™ RT use in the management of small and large burns
P31	Subbanke	Vanniyasingam	Playing catch-up as a team: Using the CARE Burn Scales to support prioritisation for re-booking into the multidisciplinary complex scar clinic
P32	Chad	Chang	Biodegradable Temporising Matrix in Acute Burns and Complex Soft Tissue Reconstruction: The Newcastle Experience
P33	Ardit	Begaj	The impact of a burns facility on inpatient repatriated patients with significant burns
P34	Sophie	Robson	Burns service development & community education in Northern Tanzania
P35	Atul	Dutt	Bronchoscopically Graded Burns Inhalation Injury: A Systematic Review of Clinical Outcomes
P36	Jamie	Mawhinney	Does 'Prison Napalm' work? Measuring the cooling temperature of sugar solution burns in a porcine model
P37	Howard	Chu	Burn depth assessment in tattooed patients: a diagnostic challenge and potential pitfall in treatment
P39	Claire	Walker	An Occupational Therapists process to optimise training. Acute Burns Rehabilitation Introduction Providing therapy within your area of expertise is as much of a professional expectation as a responsibility for Occupational Therapists. It is important to seek out professional development opportunities and dedicate time to learning in order to develop specialist skills. The question is, are these opportunities available, easily accessible and meeting the needs of practitioners and patients?
P40	Polly	Brooks, Mbe	Dan's Fund For Burns Adult Befriender Peer Support Service
P41	Laura	Cappuyns	Overcoming challenges around wounds and wound dressings in burn patients requiring nerve conduction studies
P42	Louise	Rodgers	How the pandemic has accelerated the digital transformation of the discharge planning process.
P43	Emma	Murray	Group A Strep: a cause of life-threatening infection even in innocuous burns
P44	Laura	Cappuyns	*WINNER - BEST POSTER (Care)* Developing a burn-specific perioperative checklist: version zero, a starting point
P45	Karen	Highway	Delivering a Regional Emergency Management of the Severe Burn Course in a Covid-secure way
P46	Liz	Rose	Big Macs and Lollipops: Optimising scar management intervention in a neck and face burn for a patient with a learning disability. An innovative case presentation demonstrating collaborative working between Occupational Therapy and Maxillofacial Prosthetists.

P47	Jorge	Leon-villapalos	To see or not to see: A case of complex multidisciplinary burn scarring eyelid surgical reconstruction.
P48	Sophie	Ryan	Management of the acutely burnt ear: A 20-year review of incidence, treatment, and outcomes at a regional burns centre with recommendations for a protocol to reduce complications.
P49	Benedict	Reed	Burns specific Patient Reported Experience Measures (PREM) - our Burns Unit experience in face-to-face and video conference follow-up
P50	Christia	Huntington	Providing psychosocial support for people affected by burn injuries: how can online peer-informed support aid recovery?
P51	Calandra	Li	Evaluation of patient-reported outcome measures in burn-specific tools: a rapid review
P52	Lisa	Hyde	The Introduction of a Comprehensive Sedation Pathway for the Management of Paediatric Burns Dressing Changes.
P53	Jason	Roberts	Management and outcomes of purpura fulminans in a regional burns centre
P54	David	Cussons	Single Unit Retrospective Analysis of Resuscitation Level Burns Injuries with Cyclical Improvement Goals
P55	Claire	Patton	Sequential rectal swabs to screen for multi-drug resistant organism and carbapenem-resistant organisms: Is it really necessary?
P56	Moad	Hatamleh	An audit of ward-level pain management at a regional burn centre. Is the National standard adequate?
P57	Nicholas	Cereceda-Monteoliva	Making burns a Teams game
P58	Anna	Payne	Venous thromboembolism in major burns: developing a new prophylaxis protocol.
P59	Toby	Noton	Chemical burns and the use of high-strength topical lidocaine cream in tattooing - A case report
P60	Jacob	Feathers	The use of Oxandrolone to treat moderate to severe burns: a regional burns unit experience
P61	Rachel Janet	Stewart	Number of operative treatments required to manage foot burns in the co-morbid patient.
P62	Sami	Ramadan	Ulnar nerve compression at the elbow secondary to burn-related heterotopic ossification – a case report and literature review of management options
P63	Abdulrazak	Abdulsalam	Efficacy of topical anaesthesia (eutectic mixture of local anaesthetics – EMLA) for skin grafting of lower limb ulcers.
P64	Michalis	Hadjiandreou	The role of artificial intelligence in burns care and management
P65	Sarah	Green	Retrospective Service Evaluation and Study of Outcomes for Patients Using The Katie Piper Foundation (KPF) Rehabilitation Service
P66	Emma	Murray	Ultrasound investigation in burn patients: overcoming the barriers of wounds, dressings and infection control
P67	Toby	Noton	Full-thickness burns caused by cyanoacrylate nail adhesive in paediatric patients - A case series
P68	Jacky	Edwards	Clinical Evaluation of Alprep® pad: Wound cleansing and debridement tool used in burn wound management.
P70	Jacky	Edwards	Clinical Evaluation of Curea P1 & P2 for the management of burn wound exudate
P71	Adam	Couves	Folliculitis following paediatric scalp burns

P72	Kwang Chear	Lee	Toxic shock syndrome: Beware of small friction burns to the hand
P73	Jason	Roberts	A fishy tail: a case report of reactions to fish skin dressings in two burns patients
P74	Mariam	Rela	The use of a biodegradable temporising matrix Novosorb in a child without the need for subsequent grafting: a case report
P75	Piyush	Bhatia	Extravasation injuries: literature review and a 5-year audit of injuries treated at a regional burns centre
P76	Jorge	Leon-villapalos	Acute Multidisciplinary Management of Steven-Johnsons Syndrome/Toxic Epidermal Necrolysis (TEN): focus on multidisciplinary management and ophthalmic care
P77	Niall	Martin	Neuropsychiatric presentations in burns associated with voltage-gated potassium channel antibodies: a case report and literature review
P78	Charlotte	Magness	Necrotising fasciitis: a five year retrospective review of cases referred to a Plastics and Burns Unit for initial management or reconstruction.
P79	Jacky	Edwards	Clinical evaluation to monitor efficacy and performance of Medihoney® Wound Gel and Flaminal® in managing burn wounds.
P80	Rafsan	Chowdhury	Paediatric Burns of the Hand: Our Experience Over Three Years
P81	Yvonne	Wood	A retrospective case review relating to adult burn injuries sustained from hot water bottle usage
P82	Laura	Cappuyns	Aesthetic tattoos as a treatment adjunct for scars from burns and trauma: a literature review and treatment approach
P83	Veronica	Wagstaff	Learning and adapting from student nurse experience in an Adult Regional Burns Centre
P84	Ioannis	Kyriazidis	Is the use of a powered dermatome an aerosol-generating procedure (AGP)? Implications for personal protection against COVID-19 virus
P85	Laura	Cappuyns	*WINNER - BEST POSTER (Research)* Photodynamic antimicrobial chemotherapy coupled with the use of the photosensitizers methylene blue and temoporfin as a potential novel treatment for staphylococcus aureus in burn wound infections
P86	Seren	Stone	Further perspectives on burns from E-cigarette battery explosions: a public health concern
P87	Akshat	Wahal	Preliminary experience of HDR Brachytherapy for treatment of keloid scars
P88	Matilda	Willow	Characterising firework burn injuries presenting to a Regional Burns Centre over 5 years, 2017-2021
P89	Julian	Man	Improving Knowledge and Confidence Managing Burns: a single-centre quality improvement project
P91	Teniola	Adeboye	Comparing enzymatic debridement with surgical excision - is there a case for change?
P92	Salih	Salim	Factors affecting the development of gastrointestinal dysfunction in burns: a retrospective review
P93	Henry	Antrum	The role of enzymatic burn wound debridement in reducing red blood cell transfusions
P94	Ankit	Mishra	Applying the Modified Meek technique to heal smaller burns - a retrospective review

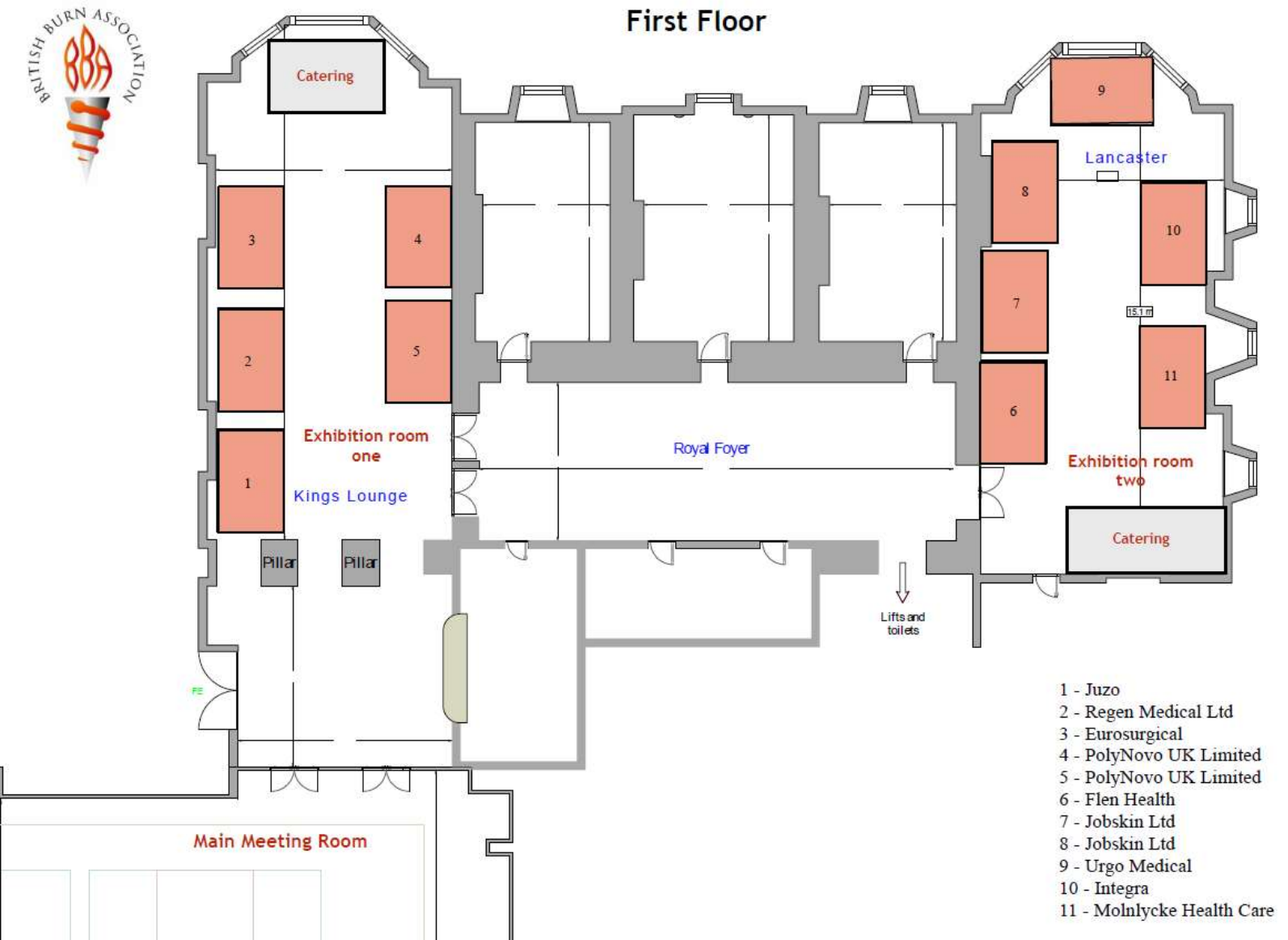
P95	Mohamed Gamal	Elsafti	Use of Biodegradable Temporising Matrix (BTM) for extensive soft tissue defect reconstruction in a neonate.
P96	Laura	Cappuyns	Hypothermia in severe burns presenting at a regional burn centre
P97	Philippa	Tollow	*RUNNER UP - BEST POSTER (Research)* Exploring parents' attitudes towards taking part in paediatric burns research: development of a multi-centre cohort study of children with burns injuries
P99	Akshat	Wahal	Tangential excision and skin grafting for severe chronic ulcerative allergic reaction to tattoo pigment. A case report and review of literature in the context of a European ban on coloured pigment tattoos.
P100	Akshat	Wahal	Use of DERMABOND® PRINEO® Skin Closure System to optimise results of excision and direct closure in acute burns

Oral Presentation List

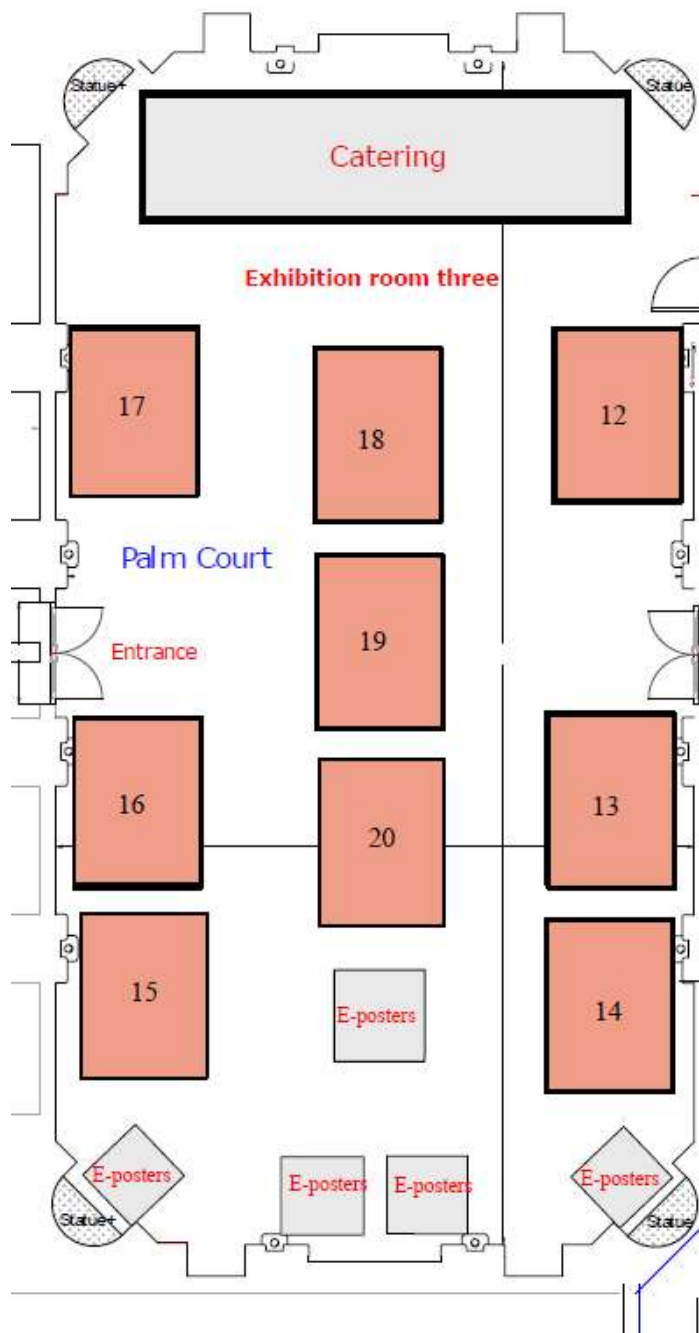
O1	Odhran	Shelley	Disaster preparedness in resource-constrained settings - The Freetown Oil Tanker Explosion
O2	Morgan	Haines	The Impact of Clinical Feedback on Burn Injury Retrieval
O3	Dushyanthi	Jayasekera	Flood the field or Block the field? : Fascia iliaca block vs local anaesthetic infiltration for thigh donor site pain in burns patients
O4	John	Gibson	Surgical simulation training for escharotomy: a novel course, improving candidate's confidence in a time critical procedure.
O5	Nicholas	Cereceda-Monteoliva	Early results and initial experience of reconstructing defects with NovoSorb® Biodegradable Temporising Matrix: a UK case series.
O6	Jason	Roberts	SARS-CoV-2 national lockdown and self-inflicted burns: our experience in a single regional burns centre
O7	Piyush	Bhatia	Steam inhalation: highlighting inconsistencies between literature and NHS patient information
O8	Toby	Noton	Paediatric resuscitation burns maintenance fluid selection - A retrospective review of cases and adherence to NICE, LSEBN and EMSB guidelines.
O9	Anirban	Mandal	Cadaveric Allograft – a potential source of filamentous fungi cross contamination and infection in burn patients?
O10	Sue	Boasman	Managing a mupirocin- resistant, methicillin-resistant staphylococcus aureus (MRSA MLST8) outbreak in the burns unit
O11	Clodagh	Canavan	Case study: A novel surgical treatment of infective endocarditis in burned patients
O12	Piyush	Bhatia	Implementation of the adult burns patient concerns inventory (PCI-B) at a regional burns centre
O13	Atul	Dutt	Impact of inhalation injury on outcomes in critically ill burns patients: 12-year experience at a regional burns centre
O14	Gursharan Kaur	Khera	Retrospective analysis of first aid in paediatric burns: are caregivers getting it right?
O15	Nicole	Lee	Adaptations of The SafeCare Nursing Tool to Fit Specialist Burns Nursing Requirements
O16	Mina	Ip	Clinical photography in burns care using a secure messaging app – a three-year service evaluation and patient satisfaction survey
O17	Sarah	Smailes	Early tracheostomy and active exercise programmes in adult intensive care patients with severe burns
O18	Luke	Conway	Pyrexia in association with scald injuries in the under 5's

O19	Shahab	Shahid	Laser Doppler Imaging – Is Poor Perfusion an Accurate Predictor of Healing Time?
O20	Alice	Lee	Development of a treatment pathway for enzymatic debridement in cutaneous burns: a single centre experience
O21	Jane	Leaver	Nurse dependency in burn care – Can it be predicted?
O22	Becca	Bambridge	Future Changes: developments from patient reported experience of an Adult Burns Clinic
O23	Sarah	Bache	Validation of the Burnt Hand Outcome Tool (BHOT): a patient led questionnaire for adults with hand burns
O24	Catrin	Pugh	From surviving to thriving my rehabilitation journey
O25	Michalis	Hadjiandreou	The role and effectiveness of remote video consultations in burns management – a single-centre experience
O26	Shirin	Pomeroy	Helping you to Heal: Developing a burns specific model of patient/ family education and support for children and families after burn injury.
O27	Bruce	Philp	Combination laser treatment of post-burns scarring: a revolution in care and our 21 years experience
O28	Ahmed	Abouzaid	Effect of autologous fat transfer in acute burn wound management: A randomized controlled study
O29	Anna	Payne	The role of anti-factor Xa measurement in major burns: literature review and survey of UK practice.
O30	Paul Dain	Park	‘A positive spin’ - an audit of efficacy and suitability of electrospun polymer dressing in management of burns associated wounds
O31	Arash	Rafie	Managing non-burn skin loss in a Paediatric Burn Centre: a 6-year experience
O32	Konstantinos	Kapositas	The use of a microbial cellulose dressing (EpiProtect®) in paediatric facial burns: a single centre experience
O33	Philippa Sophie	Richardson	Introduction of an enhanced venous thromboembolism protocol for adults with major burns: initial results from a regional burns centre
O34	Joanna	Miles	Preoperative oral supplements to decrease peri-operative fasting duration and improve nutritional optimisation - results and proposed protocol.
O35	Jason	Roberts	Burn surgery preparation and prophylactic antibiotics: an international perspective
O36	Hadyn K.N.	Kankam	Are acute burn injuries associated with long-term mortality? A systematic review and meta-analysis
O37	Charlotte	Magness	The effect of respiratory comorbidities and smoking on major burns with inhalation injuries: A 10 year review of outcomes at a UK Burns Centre.

Exhibition Floor plans – Kings Lounge & Lancaster



Exhibition Floor plans – Palm Court



Ground Floor

- 12 - MediWound
- 13 - The Katie Piper Foundation
- 14 - Rescape
- 15 - Pascoe Healthcare
- 16 - Children's Burns Trust
- 17 - Moor Instruments
- 18 - Kora Healthcare
- 19 - Safeguard Medical
- 20 - Galen Ltd

Exhibitor Profiles



The Children's Burns Trust is dedicated to providing rehabilitation support for burned and scald injured children and their families as well as prevention and awareness campaigns for which there is little or no national funding. We have been working in the UK for over 20 years, and make a positive difference in three ways:

- Working with others to raise the awareness of burns and scalds including **PREVENTION** campaigns;
- Working with professionals to provide direct help and funding for **REHABILITATION**;
- Giving direct financial **SUPPORT** to families and hospitals and providing advice on how to access burn related information.

A burn injury is for life. The scars are physical as well as psychological and can present life long challenges. It is our aim to make those challenges easier to bear and to help children and young people to grow up and lead as happy and healthy a life as possible.

- Our prevention work with hospitals, burn care professionals and educationalists has included hosting virtual events and webinars, and production of child friendly leaflets and booklets. We continue to highlight the number of scalding incidents in the under 5's and work closely with all agencies to reduce these alarming numbers;
- We actively run National Burns Awareness Day, engaging widely through social media, press etc the important messages to help prevent burn injury and appropriate First Aid if a burn does occur;
- We provide emergency grants to children and families affected by a burn injury following referral from a healthcare professional;
- We support Burns Clubs throughout the UK by offering sponsorship to children;
- Equipment purchased by us for burns services in the UK include surgical and anaesthetic equipment, physiotherapy and diversionary tools, wheelchairs, and toys;
- We enable Residential Family Therapy Weekends, held each year. Many parents experience a terrible sense of guilt surrounding the circumstances of their child's accident. This family programme allows them to discuss issues surrounding the child's burn openly with people who understand the emotions that they are experiencing, as well as to learn coping techniques.



EuroSurgical are the premier UK supplier for a wide range of dressing and surgical equipment designed for the care of burns services patients. Include **SurfaSoft** and **Dermanet** contact wound layer and the excellent **Suprathel** burns dressing – ideal for all mid to deep burns and post Nexobrid debridement. We also offer the Humecca range of skin grafting devices, including Dermatomes, Meshers and **MEEK**. <https://www.eurosurgical.co.uk/>



added value for patients, healthcare professionals, health authorities and society.

Flen Health was established in 2000, building on the results of wound-treatment research performed by its MD, Philippe Sollie, a pharmacist. Based on patented technologies, Flen Health develops and commercialises innovative skin and wound healing solutions.

We hold an ISO 13485 certificate that covers all our operations. Thanks to the success on the Belgian market, we initiated international expansion into further affiliates in Luxembourg, the Netherlands, Germany, UK, Ireland, USA and UAE, managed by 100+ motivated employees. Flen Health products are distributed in 30+ countries across the globe. UK product portfolio: Flaminal® Hydro, Flaminal® Forte, Flamigel® RT.


GALEN


Galen is a privately owned global pharmaceutical company, established in 1968 and based in Northern Ireland that supplies medicines worldwide in the areas of pain management, dermatology and gastroenterology.

Galen is a proud member of the Almac Group of world-class companies in the pharmaceutical and biotech sectors. The Group is wholly owned by the McClay Foundation, a charitable institution, whose overarching aim is to make a meaningful improvement and advancement in human health.



Integra LifeSciences is a global leader in regenerative technologies, advanced wound care and neurosurgical solutions dedicated to limiting uncertainty for clinicians, so they can focus on providing the best patient care. Integra offers a comprehensive portfolio of high quality, leadership brands that include Integra® Dermal Regeneration Template, Integra® Flowable Wound Matrix, MediHoney®, PriMatrix®, SurgiMend® and TCC-EZ®. Please visit our stand to see how our products are improving patients' lives by accelerating the recovery of burns and wounds. For the latest news and information about Integra and its brands, please visit www.integralife.com



Jobskin has built its reputation supplying the highest quality medical products for over 40 years. Leading the way in rehabilitation therapy we are the largest UK manufacturer of specialist custom compression garments for the treatment and management of scarring post burns or trauma injury. Our Premium and Classic product ranges offer an extensive collection of technically advanced garments to meet the demands of difficult to manage conditions and are available in a choice of colours and specialist fabrics. Jobskin also offers a range of complimentary silicone gel and foam products for use with our garments. We are dedicated to providing the best garments possible with the focus on improving patient quality of life



Committed to innovation, MediWound is dedicated to bringing breakthrough therapies to improve patients' lives, its enzymatic technology platform delivers next-generation biotherapeutic solutions for tissue repair and regeneration. Nexobrid®, is for non-surgical and rapid eschar removal of severe burns, does not harm surrounding viable tissue. Kerecis® Omega3 Wound product is a natural intact fish skin that is homologous to human skin and acts as a scaffold to support the body's own healing process by facilitating cellular migration, vascular in-growth, and the formation of new tissue. It is a robust, practical and effective alternative to other skin substitutes. As wound bed preparation

is important to the successful treatment of burns injuries, the application of Nexobrid® prior to Kerecis® has proven to be a successful combination. Creed Medical Ltd represents Kerecis® in the UK.



The Katie Piper Foundation is the only charity in the UK dedicated to burns rehabilitation and restoration services. Supporting adult survivors of burns and those living with severe trauma scarring with both their physical and mental health. We are dedicated to improving rehabilitation for survivors and helping to reconnect people with their communities.

In 2019 we opened the UK's first Rehabilitation Centre in the Northwest, which was followed by the launch of a remote Rehabilitation Service in 2020. Survivors of burns are able to

access a bespoke programme of rehabilitation that will often include access to our specialist team via video calls, telephone and personalized videos from the comfort of their own home. This may be accompanied by an in person stay at the Rehabilitation Centre dependent on the needs and goals of individual patients.

Since the start of the pandemic, we have seen the need for our service increase. 5 times more survivors of burns are coming to The Katie Piper Foundation for help, support and advice. We are a small but determined team working together with a dedicated network of specialists including scar physiotherapists, personal trainer, psychotherapist, dietician, sleep and intimacy therapists to make significant, lasting improvements to the lives of those with severe scars.

Our vision is a brighter future for all survivors of burns and scars.

Selenium in Burns Management?



Kora Healthcare welcomes you to their stand, for further information on the latest addition to our nutrition portfolio: the only licensed selenium treatment currently available in the UK for the treatment of proven selenium deficiency that cannot be offset by food sources

******<https://medicines.org.uk/emc/product/13205/smpc> &

<https://medicines.org.uk/emc/product/13203/smpc> (accessed 12/04/22)



care – from the operating room to the home.

Mölnlycke is a world-leading medical solutions company. We're here to advance performance in healthcare across the world, and we aspire to equip everybody in healthcare with solutions to achieve the best outcomes. We collaborate with customers to understand their needs. We design and supply medical solutions to enhance performance at every point of



Moor Instruments Ltd manufacture and supply burn wound imaging systems. Would you like to be able to view the viable blood vessels in your patients' wounds, and be able to make a more subjective diagnosis of

healing potential? Moor Instruments can help with that!

Our burn imaging systems, the moorLDI2-BI and moorLDLS-BI, are the **only proven diagnostic tools currently on the market** to have gained **FDA 510k** and European CE standards for **clinical diagnostic use in burns**.

With **rapid scanning from just 4 seconds**, and instant results on-screen (no need for any data analysis!), both patients and staff can benefit from using Moor systems.

Our systems will assist you in prompt, appropriate treatment, improving patient care and reducing costs. Some wounds appear deep by clinical assessment but are proven by our imagers to be more superficial = reduced surgery, scarring and pain of donor sites.

There are **Hospital benefits too**. Published data has shown that using our imagers can lead to early, accurate treatment resulting in reduced hospital stay, earlier rehabilitation, and ultimately reduced treatment costs.

Our burn Team collectively have over 50 years of experience of burn imaging and diagnostics – and we are here to support you through, sales, install, training and use of the device for its lifetime.

We assist you – We help the patient – We reduce Hospital costs

Discover Rapid, Early, Accurate, Non-Contact Assessment of burn wounds with Moor Imagers.

www.moorclinical.com

email: sales@moorclinical.com



Global research and development pharmaceutical company headquartered in Germany Pascoe pharmazeutische Praparate is proud launch its **UK subsidiary Pascoe Healthcare Ltd.**

The parent company is a family-owned manufacturer of pharmaceuticals, cosmetics and nutritional supplements that has been operating in the German market for 120 years.

The founding family has its roots in Cornwall-England with the subsidiary in the UK we are now returning to our roots.

Pascoe is a pioneer of high dose vitamin C infusion therapy with a state-of-the-art manufacturing facility located in Giessen Germany, employing some of the most talented scientist and clinicians in the business leading the future in research and development.

The history of Pascoe goes back to the pharmacy found by Friedrich Pascoe in 1895 who found the Pascoe company in 1918.

In 1961, Pascoe began researching its products and still invests a high proportion of its gross turnover n research today. Today the company is run by Jurgen F Pascoe and his wife Annette D Pascoe in the third generation.

For over 125 years, Pascoe has been successfully committed to improving the quality of life of patients around the world by providing high quality and innovative medicines.

Given Covid's global challenges, we are delighted to have been able to include our newly launched product in the UK in the recent REMAP trial conducted by the Department of Health.



NovoSorb BTM (Biodegradable Temporising Matrix) is a unique synthetic dermal scaffold that provides an effective reconstructive option for a range of complex wounds.

BTM is indicated for use in the management of wounds including partial and full thickness wounds, burns, pressure ulcers, venous and diabetic ulcers, surgical wounds, trauma wounds and scar reconstruction.

This unique matrix is composed of a wound-facing biodegradable open cell foam, bonded to a non-biodegradable transparent sealing membrane.

BTM enables the generation of a vascularised neodermis which provides a more robust foundation for wound reconstruction than grafting alone, limiting wound scarring and contracture.



Optimising wound healing outcomes through service, innovation and simplicity.

As a distribution business we are dedicated to helping you solve your everyday challenges in burns, wound healing and tissue regeneration. We do this by bringing you together with innovative manufacturers, a partnership that provides excellent standards of service delivered in an ethical, responsive, flexible

and straight forward manner which is focused on you and your patients.



Rescape promotes its solution, DR.VR, to the NHS, Care Homes and Hospices. DR.VR is an immersive therapeutic treatment that reduces perception of pain and alleviates anxiety thereby improving the patient experience. The modular DR.VR platform is flexible supporting multiple pathways. DR.VR Junior is designed for Paediatric departments. DR.VR is designed to be simple and straightforward to implement even with no prior VR experience. During the pandemic we developed DR.VR Frontline to reduce anxiety in NHS frontline staff with trials demonstrating that 88%

& 94% respectively of the ICU staff that trialled it had reduced levels of anxiety and stress.



Safeguard Medical is home to the world's leading and trusted brands, Prometheus Medical, H&H Medical, PerSys Medical, Combat Medical, SIMBODIES, and Water-Jel for emergency medical product technologies and skills training. Offering a

powerful portfolio of innovative, high-quality products, simulation capabilities, training courses, and consultancy programs, Safeguard Medical is dedicated to advancing its mission of equipping and enabling responders at every skill level to preserve life in any environment.



Urgo Medical is a global wound care company offering a range of innovative dressings, compression bandaging and hosiery.

We believe strongly in evidence-based care, and pride ourselves on our products having the highest level of clinical evidence available to support their usage.

Our UrgoStart Plus treatment range is recommended by NICE for the treatment of venous leg ulcers and diabetic foot ulcers. Urgo Start Plus is the only dressing proven to reduce healing time of leg ulcers, diabetic foot ulcers and pressure ulcers.

To help deliver improved patient outcomes and reduced healing time, we offer market-leading education and support through our experienced clinical team.

Our brands include UrgoStart Plus, UrgoKTwo, UrgoClean Ag and UrgoTul Range Urgo Medical. Healing people.

www.urgostartplus.co.uk

Oral Presentation Abstracts

Disaster preparedness in resource-constrained settings - The Freetown Oil Tanker Explosion

Abdulai Jalloh^{1,2,3,4}, Eric Wongo^{1,2,3,4}, Joshua Coker, Onome Abiri, Alhaji Gbla, Mustapha Kabba, Don Prisno Lucero⁵, Michalis Hajiandreu⁶, William Hughes⁷, Mr Odhran Shelley^{1,8,9,10}

¹Resurge Africa, , Liberator House, , United Kingdom, ²Connaught Teaching Hospital, , Freetown, , Sierra Leone, ³Holy Spirit Hospital, , , Sierra Leone, ⁴College of Medicine and Allied Health sciences, , Freetown, Sierra Leone, ⁵London school of Hygiene and Tropical Medicine, , UK, ⁶Livingston Burn Unit, , UK, ⁷Jefferson Burn Centre, , Philadelphia, USA, ⁸St Andrews Centre for Plastic Surgery and Burns, , , UK, ⁹8. National Burn Centre, , St James Hospital, Ireland,

¹⁰Trinity College, , Ireland

Wednesday morning sessions, Kings Suite, May 4, 2022, 09:55 - 12:35

Introduction

Major Burn Disaster remains a major challenge to health care systems and often results in great loss of life, which is often compounded by resource limitation and delays in responsiveness.

Methods

We explore how a recent major disaster following an oil tanker explosion in Sierra Leone was managed locally and how international agencies were coordinated.

Results

An oil- tanker explosion in the suburbs of Freetown resulted in a devastating explosion and loss to life. The oil tanker had started leaking fuel, which attracted multiple individuals to the site, in efforts to retrieve liquid fuel. More than 100 people were reported to have died immediately at the explosion site, with images of severely burned bodies circulating widely on the internet.

158 patients sought hospital treatment following the explosion. There was an immediate recognition of the scale of the disaster internationally, and with involvement of the Sierra Leonean Resurge Africa team help was sought from international agencies such as the World Health Organisation.

Discussion

The explosion resulted in major loss of life, exhausted local supplies and severely stretched existing supply chains. International offers of care were many, but ad Hoc and lacking depth of coordination. Fortunately the services was supported and led by a local team of Certified Reconstructive surgeons, nurses and therapists who had been supported in training by Resurge Africa. This provided the knowledge of resources skills opportunities and culture which was better able to inform external agencies. International responsiveness was limited by the need for formal requests from the Sierra Leonean Government, limited regional emergency response services, and multiplicity of agency.

Conclusion

Major burn disasters are challenging, resultant in large numbers of casualties, which though unexpected need to be planned for. It is widely recognised that such disasters quickly overwhelm local teams, with excessive loss of life more than that which would otherwise be the case. As such we recommend better coordination of international response efforts.

The Impact of Clinical Feedback on Burn Injury Retrieval

Dr Morgan Haines¹, Dr Varun Harish¹

¹*Department of Burns, Maxillofacial, Plastic and Reconstructive Surgery, Royal North Shore Hospital, Sydney, Australia*

Wednesday morning sessions, Kings Suite, May 4, 2022, 09:55 - 12:35

Introduction

Modern burn care is centralised, and studies show that early, prompt referral to dedicated burn services improve clinical outcomes. We describe the use of a novel clinical instrument, the burn injury Transfer Feedback Form, to support and educate referring clinicians the early assessment and management of burn injuries. Since 2005, Transfer Feedback Forms have been completed for all burn-injured patients requiring inter-hospital transfer to a specialised burn unit in the state of New South Wales (NSW), Australia.

Purpose

The aim of this study was to review physiological, procedural, and system or process issues in the care of both adult and paediatric burn-injured patients needing retrieval and transfer in NSW as identified by the Transfer Feedback Form. Secondary objectives were to determine if there were any significant differences in these parameters between metropolitan and regional or remote referring institutions, and if there had been any improvements in these parameters over time.

Methods

This was a retrospective analysis of all patients who were transferred to a burn unit in NSW between July 2005 and July 2021 using their prospectively completed Transfer Feedback Forms. Patients were divided into metropolitan and non-metropolitan referral sources based on geographic location. Clinical issues or deficiencies identified during each patient transfer were then classified into various groups. To determine if transfer-related clinical concerns had changed with time, two distinct time periods were analysed.

Results

A total of 3233 patients had Feedback Forms submitted during the 16-year period. There were 929 children (28.7%) and 2304 adults (71.3%). Transfer-related clinical issues were identified in 904 adults (39.0%) and 484 children (52.0%). In both adult and paediatric patients, the most common transfer-related clinical deficiency was in relation to burn size estimation with 525 patients (43.7%) and 207 patients (30.6%), respectively. Between the time periods analysed, the number of issues arising during inter-hospital transfer fell significantly for both adults (from 46.1% to 26.1%; $p < 0.05$) and children (from 55.3% to 40.7%; $p < 0.05$). Statistically significant improvements between the two time periods were also observed in both metropolitan and regional/remote referring centres for both adult and paediatric burn-injured patients. Accurate body surface area estimations also increased significantly by 53% and 50% for adults and children ($p < 0.05$ for both), respectively, after 2015.

Conclusion

Our analysis indicates that the early care of burn-injured patients undergoing inter-hospital transfer is associated with clinical, technical and logistical challenges. However, following introduction of the burn injury Transfer Feedback Form, referring centres have demonstrated significant improvements in early burn care both temporally and geographically. Smartphone-based applications such as the NSW Trauma App have likely contributed to these findings. These simple and inexpensive strategies can be widely adopted in centralised burn referral systems in order to augment inter-hospital transfers and improve clinical outcomes in burn-injured patients globally

Flood the field or Block the field? : Fascia iliaca block vs local anaesthetic infiltration for thigh donor site pain in burns patients

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Wednesday morning sessions, Kings Suite, May 4, 2022, 09:55 - 12:35

Introduction

Burn patients frequently require autologous split thickness skin graft (SSG) for wound management. SSG contains epidermis and areas of dermis and the donor site can be painful. A popular site for harvesting skin is the anterolateral aspect of the upper thigh. The fascia iliaca compartment block (FICB) is an easily performed block that anaesthetizes the antero-lateral aspect of the thigh and is effective for managing donor site pain. Local infiltration is another commonly used method for donor site analgesia. Both methods modulate the need for systemic analgesics.

Objectives

To compare effects of local infiltration and FICB in moderating systemic analgesia consumption and pain scores in the first 48 hours following SSG.

Method

With local hospital ethics committee approval, and patient consent, a double-blind randomised control trial of adult patients with burn injuries <7% total burn surface area (TBSA) requiring SSG was initiated. Due to unforeseen logistical reasons and evolving clinical practice, the study was downgraded to a prospective observational study. A standard anaesthetic technique was followed: remifentanyl-based general anaesthesia with intraoperative paracetamol and diclofenac with Morphine (0.1-0.3 mg/kg) towards the end of procedure. 40ml of 0.25% bupivacaine was either administered as FICB or locally infiltrated.

A standard postoperative analgesic regimen with simple analgesia and opioids was prescribed. Analgesic consumption based on the need for simple analgesia and/or opioids for 48 hours post operatively was recorded. An independent observer assessed pain scores using a visual analogue scale at approximately 6h, 24h and 48h including the worst score in the first 24hours. Data were analysed using Chi square test, T-test or Mann Whitney test as indicated.

Results

34 patients were initially recruited and 24 patients met inclusion criteria. 11 patients were administered FICB and 13 had local infiltration of bupivacaine. The two groups were equally distributed in Age ($P > .1$), weight ($P > .1$) and donor site area ($P = .98$). There was no difference in both groups in analgesia consumption in the immediate post operative period ($P = .16$) or in the first 48h ($P = .83$). There was no difference in post operative pain scores at six hours ($P = .47$), 24h ($P = .82$), and the worst score in 24 h ($P = .44$). Although not statistically significant, no postoperative analgesia was required for six patients who received local infiltration compared to two with FICB.

Conclusion/ Discussion

The FICB and local infiltration are equally effective in providing postoperative analgesia for SSG donor sites in burn injuries. We hypothesize less analgesia with FICB may be due to variability of the anatomy of the lateral cutaneous nerve of the thigh. More patients in the local infiltration group did not require postoperative analgesia. Although not borne out statistically, this is an important clinical finding as it may affect postoperative patient stay. A larger sample size may have shown a statistical difference. We recommend further study with a larger sample size

Surgical simulation training for escharotomy: a novel course, improving candidate's confidence in a time critical procedure.

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Wednesday morning sessions, Kings Suite, May 4, 2022, 09:55 - 12:35

Background:

Circumferential deep burns on the limb lead to a constrictive, tourniquet-like effect causing critical limb ischaemia. The treatment, escharotomy, is a time-critical procedure that is sometimes required before the patient arrives at a burn centre. To date, no practical method of teaching this procedure has been developed outside of an acute burns admission.

Methods

The feasibility of a comprehensive education package to teach upper limb escharotomy was assessed in a group of plastic and general surgery trainees in Wales. Small group workshops focused on the clinical presentation of patients requiring escharotomy. Participants then executed this on a custom-made high-fidelity simulation upper limb model. The articulated limb has subcutaneous silicone fat which bulges upon decompression and a finger-tip which turns pink indicating satisfactory reperfusion. A before and after five-point Likert scale was used to evaluate changes in participants' self-assessed confidence in the surgical management of escharotomy. Statistical significance between scores was assessed using the Wilcoxon signed-rank test.

Results

A total of 34 participants took part. Following completion of the course, general surgery trainees' confidence in executing the procedure increased from a median score of 1.00 "not confident at all" (IQR 1.00-2.00) to 4.00 "fairly confident" (IQR 4.00-5.00, $p < 0.01$). Plastic surgery trainees' confidence increased from a median score of was 3.00 "somewhat confident" (IQR 1.75-4.00) to 4.00 "fairly confident" (IQR 3.00–4.25, $p < 0.01$).

Discussion

We have developed a novel, comprehensive simulator course that has been demonstrated to improve candidate's confidence in performing escharotomy. The next stage in the course development is to confirm the results in a larger cohort. By developing this simulator course we aim to improve emergency burn care education in the UK and globally.

Early results and initial experience of reconstructing defects with NovoSorb® Biodegradable Temporising Matrix: a UK case series.

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Wednesday morning sessions, Kings Suite, May 4, 2022, 09:55 - 12:35

Introduction:

NovoSorb® Biodegradable Temporising Matrix (BTM) is a synthetic skin substitute developed for temporising treatment of full thickness skin defects. It is increasingly used in the management of burn injuries, necrotising fasciitis, skin cancer and complex wounds. It's use involves a two-stage reconstruction whereby it is first applied to cover the defect, allowing time for a vascularised neodermis to form beneath, and is later grafted at a second procedure for definitive reconstruction.

Purpose of the study:

We aim to share our experience of using BTM to reconstruct challenging defects and report time to wound closure and complication profile.

Methods:

We performed a retrospective case series review of patients treated with BTM at Queen Victoria Hospital NHS Trust from October 2020 to December 2021. Data including patient demographics, defect aetiology, wound features, surgical treatment and complications were collected from the medical records and clinical photography.

Results:

BTM was used in the treatment of 26 patients with 28 wounds in total, with a range of aetiologies including acute burns, scar revision, skin cancer and trauma. Defects treated ranged from 0.25% to 8% TBSA and often involved exposed bone or tendon. Successful secondary reconstruction was performed in 22 defects, including one skin cancer case requiring a free flap. Mean time to reconstruction was 5 weeks after application of BTM, including one case grafted at 2 weeks and two cases grafted at 8 weeks due to delays to surgery for medical optimisation and additional preoperative investigation. Furthermore, 5 wounds (17.8%) showed adequate re-epithelialisation with BTM alone without need for secondary reconstruction. Mean length of follow-up was 2 months post reconstruction. Satisfactory cosmetic and functional outcomes were observed. Complications were recorded in 4 cases (14.2%) including infection and BTM nonadherence, with one case of complete failure due to postoperative haematoma. Using the largest sizes of the skin substitutes available in our centre, a direct cost comparison reveals that Novosorb costs £3.50/cm² compared to Integra® £6.56/cm² and Matriderm® £5.61/cm².

Conclusion:

BTM provided an effective treatment option in cases not amenable to immediate reconstruction, to develop a healthy vascularised tissue bed for secondary skin grafting. Moreover, a significant number of patients did not require secondary reconstruction. Successful short-term outcomes are observed including cosmesis and function. However, complications can occur, and further research is required to compare these rates to those of other dermal matrices and compare cost-effectiveness. Direct cost comparison appears to favour BTM. As it is not animal derived, NovoSorb®BTM may also have greater acceptability amongst patients. NovoSorb®BTM provides a safe and reliable reconstructive option for complex wound surgery

SARS-CoV-2 national lockdown and self-inflicted burns: our experience in a single regional burns centre

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Wednesday morning sessions, Kings Suite, May 4, 2022, 09:55 - 12:35

Introduction:

Self-inflicted burn injuries represent a significant proportion of the workload for a burns service. The Covid-19 national lockdown was widely cited as causing an unprecedented strain on the mental health and well-being of the general population.

Purpose of study:

The purpose of this study was to investigate whether changes in patterns of behaviours during the national lockdowns affected the number of patients presenting with self-inflicted burn injuries at the regional burns service at the St. Andrews' Centre for Plastic Surgery and Burns.

Methods:

Retrospective data (patient demographics, psychiatric history, burn) was collected on all deliberate self-harm burn patients seen at the St Andrews' Centre for Plastic Surgery and Burns over two years between March 2019 and March 2021 to compare presentations before and after the first national lockdown.

Results:

Ninety-three consecutive patients were included in the study. Group 1 comprised 40 patients (18 males:22 females) who presented before the national lockdown and Group 2 comprised 53 patients (18 males:35 females) who presented after the national lockdown.

In group 2, there was a 32.5% increase in the overall presentation and a 59.1% increase in the number of female presentations. However, this was not statistically significant ($p=0.292$).

The median age was 33 (range 14-76) and 29 (range 12-62) for groups 1 and 2 respectively.

A similar proportion of patients in both groups had a previous psychiatric history (80.0% and 69.8% in group 1 and group 2 respectively ($P=0.341$)). However, a higher proportion of patients in group 1 had a previous history of anxiety/depression (55% vs 32.1%, $P=0.034$). Conversely, more patients had psychosis in group 2 than in group 1 but this was not significant (13.2% vs 7.5%, $P=0.50$). There was no difference in the prior history of self-harm in the two groups (52.5% vs 37.7%, $P=0.140$).

In group 1 more patients required admission but this was not significant (50.0% vs 39.6%, $P=0.400$). Flame burns accounted for the most common mechanism of injury in both groups 1 and 2 (42.5% and 45.3% respectively, $P=0.835$).

The median burn size was 1% TBSA in both groups with the vast majority of burns less than 5% TBSA (75.0% in group 1 vs 77.3% in group 2, $P=0.478$). Similar numbers of patients presented with large burns greater than 20% TBSA (17.5% in group 1 vs 18.9% in group 2, $P=1.000$).

Conclusions:

Elsewhere it has been demonstrated that the national lockdowns have put a severe strain on the mental health and wellbeing of the general population. Our centre found an increase in the number of patients presenting with self-inflicted burn injuries. This may be accounted for by the increase in strain on the mental health of the general population inflicted by the Covid-19 pandemic lockdown.

Steam inhalation: highlighting inconsistencies between literature and NHS patient information

Mr Piyush Bhatia^{1,2}, Professor Kayvan Shokrollahi¹

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Wednesday morning sessions, Kings Suite, May 4, 2022, 09:55 - 12:35

Background

Steam inhalation is a commonly used home remedy for symptom relief in various respiratory and sinus conditions. Accidental spillage as a result of this practice can often result in significant scald injuries resulting in lifelong physical and psychological implications. Recently, a letter in the Lancet highlighted an increase in scalds admission rates directly relating to steam inhalation, especially in areas of higher COVID-19 incidence. The authors concluded that clinicians “should actively discourage steam inhalation” due to this becoming an emerging issue across burns services.

This study aims to: 1) review the current literature to identify whether steam inhalation is advocated or discouraged 2) appraise whether patient-facing NHS resources are congruent with published evidence and determine if NHS messaging regarding this practice is aligned or mixed.

Methods

A two-step methodology was employed: 1) The PubMed and Cochrane databases were searched using the term “Steam inhalation” to identify relevant articles. Inclusion criteria: English language, Humans. A modified PRISMA framework was used to systematically screen and evaluate chosen articles. 2) A Google search was also conducted to identify public-facing resources including NHS websites and patient information leaflets from different trusts.

Results

1) In total, 12 papers were identified of which 9 discouraged steam inhalation whilst 2 encouraged this practice and 1 was unequivocal. One interventional study explicitly encouraged the use of steam inhalation for “at risk” COVID-19 patients. 2) 4 relevant NHS websites were analysed of which 3 encouraged steam inhalation whilst 1 was unequivocal. Only 1 out of 4 websites provided appropriate warnings for adults. Additionally, 5 patient information leaflets relating to sinus and cough management were identified from various trusts across England, of which only 1 discouraged the practice.

Conclusion

Our literature review highlighted that there is no substantial clinical evidence for the use of steam inhalation. Nonetheless, one study even showed that this is still encouraged at the primary care level. Recently, the British Burn Association initiated a national public awareness campaign to warn and educate people regarding the risks to scalds, especially in the advent of COVID-19. However, although the literature discourages steam inhalation, this has not translated well into the widely available patient-facing healthcare resources such as leaflets or NHS websites as there are still insufficient warnings. There is also no sufficient acknowledgment regarding the limited evidence base of this practice.

In addition, besides the damaging impact that ill-informed advice can have upon an already burdened NHS, this also opens up questions regarding public perception. With mixed messaging and GP’s/online information still encouraging this practice, steam inhaling may be perceived as an alternative to medical treatment leading to reduced patient compliance and increased scald injuries. Such a clear discrepancy within the NHS regarding the current literature versus NHS patient-facing resources warrants an urgent review at a national level. We recommend an updated NHS-wide message with appropriate warnings: ‘There is no evidence in favour of steam inhalation in either adults or children, with considerable risk of scalds in both group

Paediatric resuscitation burns maintenance fluid selection - A retrospective review of cases and adherence to NICE, LSEBN and EMSB guidelines.

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Wednesday morning sessions, Kings Suite, May 4, 2022, 09:55 - 12:35

Background:

Appropriate fluid management in major burn injuries is directly related to burn survival rates. Despite this fact, there are still controversies regarding the choice of replacement fluid given during the resuscitation and maintenance stages in the acute management of burns.

Purpose of study:

The aims of this study are to compare current paediatric maintenance fluid prescriptions against current guidelines, and to assess whether there is of any adverse effects (i.e. electrolyte disturbance).

Method:

Details of all paediatric burns patients (aged 18 years or under) who were admitted to the paediatric burns ward during an 18-month-period were screened. Only those coded as having sustained 10% TBSA burns or greater were included in data analysis. Data was then sourced using Cerner electronic patient record software.

Results:

A total of 17 patients were identified, all sustaining scald injuries with between 10% and 22% TBSA burns. Every patient was given 0.45% NaCl with 5% dextrose as maintenance fluid. All IV maintenance supplementation was ceased after 24hrs. Only 53% of patients had pre- and post-fluid bloods taken. Average drop in sodium amongst these patients was 2mmol, with largest drop (5mmol) in the patient with the largest burns % TBSA.

Conclusions:

We found zero compliance with current NICE guidelines, which suggests an isotonic crystalloid (such as 0.9% NaCl with 5% dextrose) for maintenance, therefore guidance in line with NICE guidelines should be considered. Larger burns TBSA or prolonged IV fluids may amplify electrolyte imbalances. The importance of consistent electrolyte monitoring amongst this patient cohort is key and should be encourage

Implementation of the adult burns patient concerns inventory (PCI-B) at a regional burns centre

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Wednesday afternoon sessions, Kings Suite, May 4, 2022, 16:20 - 18:25

Background

Burns survivors often endure a complex journey of physical and psychological impairment, where identifying concerns early is vital for providing optimal holistic management. The Adult Burns Patient Concerns Inventory (PCI-B) is a 58-item prompt list containing a variety of topics. Patients select which concerns they wish to discuss before their upcoming consultation, encouraging them to raise difficult issues during time-restricted clinics. PCI-based consultations deployed in other specialties have shown to empower patients by allowing focused discussions towards their individual concerns, whilst uncovering unmet needs. Currently, no studies have evaluated the feasibility and practicalities of implementing the PCI-B tool since its development. The widespread shift towards remote consultations amid the COVID-19 crisis also provided a unique opportunity to assess whether this could be implemented remotely. This study is the first to report on the use of PCI-B in clinical practice for both in-person and remote consultations whilst exploring patient concerns.

Methods

A prospective service evaluation methodology was conducted between Feb-Mar 2021 inclusive at a regional burns centre. All patients attending telephone or in-person consultations for burns care were contacted prior to their appointment to complete the PCI-B form and return via email. The completed forms were sent to the clinician before their interaction. Non-identifiable clinical data was also extracted using a data-capture worksheet for contextual analysis. Spearman's correlation coefficient and descriptive statistics was performed for data analysis. Patients were also given the opportunity to provide feedback using a consent form with a Likert-style questionnaire.

Results

33 out of 63 patients responded and were included in this study ((M=18, F=15, Mean age = 46 years (range 20-80 years)). These were 12 in-person vs 21 telephone consultations. Scalds were the most common cause of injury (n=10) and the modal time since primary diagnosis was between 12-23 months (n=12). "Scarring" was the most commonly selected issue (45.5%, n=15), followed by, "Ongoing wound care" (36.4%, n=12), "Anxiety" (30.3%, n=10), "Appearance" (27.3%, n=9) and "Dry skin" (27.3%, n=9). Six out of the top ten concerns were issues surrounding mental health. Spearman's analysis indicated a significant 'strong positive' correlation between the number of items selected on the PCI-B vs the number actually discussed ($r_s = 0.98$, $p < .001$, $n = 33$). The mean consultation time was 20.5 minutes. Lastly, 5 patients provided feedback, all in favour of PCI facilitated clinics.

Conclusions

Our study highlighted that the PCI-B tool is a logistically feasible and clinically useful adjunct to burns units, which is also applicable for remote consultations. The data analysis showed that several concerns were being addressed without compromising upon consultation times. Furthermore, PCI-B clinics also allowed for a patient-driven conversation helping uncover a high prevalence of psychological concerns within the study sample. This not only helps clinicians to address such issues early, but also, provides a key opportunity for future research to investigate how burns services can better implement psycho-social treatment within burns management. Future work should involve robust multi-centre trials with larger sample sizes to better understand the benefits and downfalls of routinely implementing this impressive clinical toolkit.

Patient Concerns Inventory [PCI]

Please choose from the list of issues you would specifically like to talk about in your consultation in clinic today. You can choose more than one option (tick boxes).

Physical and functional well-being:

- ☐ Contractures
- ☐ Daily Activities
- ☐ Dry Skin
- ☐ Energy
- ☐ Exercise
- ☐ Hand Function
- ☐ Heat Sensitivity
- ☐ Increased skin sensitivity
- ☐ Itch
- ☐ Loss of functioning
- ☐ Mobility
- ☐ Nerve Pain
- ☐ Pain
- ☐ Scarring
- ☐ Sleep
- ☐ Stiffness
- ☐ Tightness
- ☐ Weight

Social Care and Social well-being:

- ☐ Family/Support for my family
- ☐ Finance
- ☐ Friends
- ☐ Hobbies/Interests
- ☐ Legal implications of the accident/injury
- ☐ Personal Care
- ☐ Work/Education

Psychological, emotional and spiritual well-being:

- ☐ Acceptance
- ☐ Alcohol
- ☐ Anger
- ☐ Anxiety
- ☐ Appearance
- ☐ Body image
- ☐ Avoidance
- ☐ Comments and questions from others
- ☐ Concentration
- ☐ Confidence
- ☐ Coping
- ☐ Depression
- ☐ Emotions
- ☐ Flashbacks
- ☐ Increased awareness of danger
- ☐ Low mood
- ☐ Psychological Trauma
- ☐ Relationships
- ☐ Self esteem
- ☐ Sex
- ☐ Smoking
- ☐ The future

Treatment related concerns:

- ☐ Camouflage
- ☐ Dressing changes
- ☐ Infection
- ☐ GP
- ☐ Medication
- ☐ Ongoing wound/scar care
- ☐ Pressure Garments
- ☐ Reconstruction
- ☐ Splints
- ☐ Support groups
- ☐ Therapy

Other (Please State):

Name:

Managing a mupiricin- resistant, methicillin-resistant staphylococcus aureus (MRSA MLST8) outbreak in the burns unit

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Wednesday afternoon sessions, Kings Suite, May 4, 2022, 16:20 - 18:25

Introduction

Methicillin-resistant staphylococcus aureus (MRSA) is a group of Gram-positive bacteria that are genetically distinct from other strains of Staphylococcus aureus, and have developed multiple drug resistance to beta-lactam antibiotics. MRSA is commonly seen in vulnerable patients such as those with significant burn injury. However, a recent strain of MRSA detected in our regional burns service was identified as additionally resistant to other antimicrobials including Mupiricin and Fucidic acid (MLST8). This resulted in further challenges around managing, controlling and treating the infection.

Purpose

To safely manage and control the spread of MRSA within a burns service by identifying possible primary cause and subsequent positive cases, implementing appropriate decontamination protocols and engaging with the wider infection prevention multidisciplinary team to minimise the risk to patients and staff.

Methods

A large project involving many professionals from a variety of disciplines such as senior nursing and medical staff, infection prevention, microbiology, occupational health, employee relations, the CCG and NHSE/I, was required to ensure comprehensive review and safe management of a significant infection outbreak in an acute regional burns centre.

This included weekly high level meetings and regular clinical audits to establish time lines, comprehensive typing and scrutiny of the strain to identify potential common links, extensive swabbing and decontamination of both patients and staff, and introducing new infection prevention practices.

Results

Over a 12 month period, 28 burn patients were identified with the resistant strain of MRSA (MLST8). In total 46 staff were swabbed in 4 cohorts. 5 staff were MRSA positive, 2 of those with the outbreak strain.

Discussion

Patient safety was a primary consideration with the aim of minimising risk of spread to other vulnerable patients. Identifying the potential source of the infection was paramount to slowing spread. Patient to staff, or staff to patient transmission was difficult to establish. Environmental and equipment swabbing identified some potential high risk items such as Entonox cylinders and other mobile equipment. Movement of equipment and staff between areas of the burns unit was subsequently reduced, and infection prevention practices revisited.

Consideration of the implementation of staff swabbing, how to identify cohorts of staff or use random sampling, was discussed. The implications for the service and staff with positive swabs, treatment plans, time off work and potential employment aspects, demonstrated a huge wider impact of managing the outbreak.

Usual treatment protocols for clinical decontamination were required to be adapted in response to resistance and sensitivity information. After two rounds of nasal and skin decontamination, persistent positive swabs resulted in additional oral antibiotic treatment to ensure successful decontamination.

The challenge of providing good communication to the wider team, while maintaining confidentiality was also considered; alongside the need to provide emotional support to patients, staff and their families.

Conclusion

The impact of a super resistant infection on the provision of safe burns care in a regional unit is complex and challenging, requiring multi-professional engagement to consider many factors that influence safe and effective infection prevention management for both patients and staff. Some important lessons were learnt.

Case study: A novel surgical treatment of infective endocarditis in burned patients

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Wednesday afternoon sessions, Kings Suite, May 4, 2022, 16:20 - 18:25

(a) Introduction

Identifying and treating the source of infection is critical in clinical patient care. This is particularly true of burned patients, at high risk of sepsis and its complications. Infective endocarditis(IE) has both a high incidence and high mortality in burned patients.

(b) Purpose of the study

The objective of this case report is to showcase a novel, minimally invasive surgical intervention to treat IE in burned patients – large bore catheter aspiration ('Angiovac').

(c) Methods

A thorough review of the patient's medical records, including daily progress notes, procedure notes, blood work and imaging was carried out.

(d) Results/Discussion

A 47-year-old woman sustained 70% TBSA mixed thickness burns in an arson attack and was intubated on arrival. She underwent debridement and sandwich grafting early on in her 212 day admission. Prior to contracting IE, the patient was recurrently septic, developed a type 3 penicillin allergy and lost her vision due to posterior reversible encephalopathy syndrome (PRES). The patient's course was further complicated when she began to intermittently spike temperatures. A full septic work up did not detect a definitive source of infection, until a trans-thoracic echocardiogram (TTE) was performed. This identified a large volume, highly mobile tricuspid valve endocarditis. Blood cultures were intermittently positive from this point in her admission. Due to the type three penicillin allergy and slowly healing graft sites covering over 70% her body, IE treatment options were exceedingly limited in this patient. The conventional antibiotics and thoracotomy approach to treating the right sided IE were rejected. Antibiotic cover consisted of; Amphotericin B, Daptomycin and Flucytosine. The patient successfully underwent the Angiovac procedure. This was followed by 24 hours of monitoring in the cardiac ICU before successfully returning to the burns unit. The post procedure TTE showed minimal residual vegetation and preservation of tricuspid valve function.

This life-saving, novel intervention successfully eliminated the risk of septic embolisation and preserved cardiac valve function. Within ten days of the procedure, the patient was deemed fit for general anaesthesia allowing for further debridement and sandwich grafting of unhealed graft sites.

Unfortunately, this patient's infection burden was ultimately too severe to sustain overall recovery. Months later, she died of multi-drug resistant sepsis and multifocal intracranial haemorrhages, secondary to atypical PRES.

(e) Conclusion

Invasive procedures are often necessary in the treatment of burned patients. The Angiovac offers a viable and minimally invasive treatment option to burned patients with right sided IE. This intervention has the potential to effectively and efficiently treat IE, a life-threatening complication that is more common in burned patients.

Impact of inhalation injury on outcomes in critically ill burns patients: 12-year experience at a regional burns centre

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Wednesday afternoon sessions, Kings Suite, May 4, 2022, 16:20 - 18:25

Introduction: Burns inhalation injury (BII) and pneumonia increase the attributable mortality of burns related trauma.

Purpose: To evaluate the impact of BII, pneumonia and other risk factors on outcomes in critically ill burns patients.

Methods: A single-centre cohort study of all patients admitted to a tertiary Burns centre intensive care unit (BICU) over 12 years. Demographic data, burn and BII characteristics, and ICU-related parameters were collected retrospectively. The primary outcome was mortality. Secondary outcomes were hospital and ICU lengths of stay. The impact of pneumonia was determined. Univariate and multivariable Cox's proportional hazards regression analyses informed factors predicting mortality.

Results: BII was diagnosed in 84 of 231 (36%) critically ill burns patients; 20 mild (grade 1), 41 severe (grades 2/3) and 23 unclassified bronchoscopically. Median (IQR) total body surface area burned (TBSA) was 20% (10-40). Mortality was significantly higher in patients with BII vs those without BII (38/84 [45%] vs 35/147 [24%], $p < 0.001$). Patients with pneumonia had a higher mortality than those without (34/125 [27%] vs 8/71 [11%], $p = 0.009$). In multivariable analysis, severe BII significantly increased mortality (adjusted HR=2.14, 95%CI: 1.12-4.09, $p = 0.022$), compared with mild injury (adjusted HR=0.58, 95% CI: 0.18-1.86, $p = 0.363$). Facial burns (adjusted HR=3.13, 95%CI: 1.69-5.79, $p < 0.001$), higher TBSA (adjusted HR=1.05, 95%CI: 1.04-1.06, $p < 0.001$) and older age (adjusted HR=1.04, 95%CI: 1.02-1.07, $p < 0.001$) also independently predicted mortality, though pneumonia did not.

Conclusions: Severe BII is a significant risk factor for mortality in critically ill burns patients. However, pneumonia did not increase mortality from BII. This work confirms prior implications of bronchoscopically graded BII. Further study is suggested, through registries, into the diagnostic accuracy and reliability of bronchoscopy in burns related lung injury.

Retrospective analysis of first aid in paediatric burns: are caregivers getting it right?

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Wednesday afternoon sessions, Kings Suite, May 4, 2022, 16:20 - 18:25

Introduction:

Burn injuries affect roughly 250,000 individuals per year and are the fifth most common cause of non-fatal injuries amongst children(1). This patient group is particularly vulnerable to the complications of burns as a result of larger body surface area to mass ratio, thinner skin and naive thermoregulation when compared with adults(2). Appropriate and timely first aid stops the burning process, cools and protects the burn and provides pain relief. This plays a significant role in achieving good clinical and cosmetic outcomes for paediatric patients. However, information on the incidence and quality of first aid children receive from their caregivers upon sustaining a burn injury is lacking.

Purpose of the study:

The objective of this study was to understand the prehospital treatment patients received, and to analyze how often children received appropriate first aid following a significant burn requiring specialist management.

Methods:

The authors used electronic health records to retrospectively identify all children seen at a specialist, paediatric burns unit, over the month of December 2021. All new referrals accepted for assessment or admission were included. Patients whose clerking records were incomplete in regard to first aid following the burn injury were excluded. Data collected included patient demographics, mechanism of injury, burn size, depth and details of first aid provided by the patient's caregiver.

Results:

Data from 141 paediatric patients, aged 2 months to 15 years old, was analysed. Burns ranged from 0.1% to 9% TBSA (total body surface area) and the predominant mechanism of injury was scalding (110/141, 78%). Overall, 13%(18/141) of children seen during the month of December, with varying sizes of burns, did not receive any form of first aid.

The majority of children (123/141, 87%) received some form of acute treatment or "first aid" from their caregiver. Of these patients, 69% (85/123) received first aid via an appropriate method, as measured against standards set out in UK NICE(3) and NHS(4) guidance. However, of these individuals, only 24% (29/123) received appropriate first aid for the recommended length of time. There was no correlation between a child's age or burn size (TBSA) and the receipt of appropriate first aid treatment. In many cases(38/123, 31%), acute treatment of the burn was inappropriate and potentially harmful, with caregivers using topical creams and household remedies, such as toothpaste, egg white and cold milk. In total, 79% (112/141) of patients received either no or inadequate first aid.

Conclusion:

First aid treatment has a significant impact on the clinical and cosmetic outcome of burn injuries. The majority of children over this one month period did not receive appropriate first aid for an adequate length of time and, in some cases, received treatment that was harmful. This study does not capture patients

managed outside of tertiary care, therefore the incidence of inappropriate practice may be wider than calculated. Increased parental education and public education could improve the quality first aid received by children who sustain burn injuries.

References

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Adaptations of The SafeCare Nursing Tool to Fit Specialist Burns Nursing Requirements

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Wednesday afternoon sessions, Kings Suite, May 4, 2022, 16:20 - 18:25

Introduction – over the last few years there has been an introduction of SafeCare in to UK hospitals to enabled safer nursing numbers within ward environments, however design of the tool is based on generic ward level patient acuity and has been clearly documented with literature not for use within specialist areas of care.

Purpose of the study - to explore adaptations to SafeCare nursing tool to accurately monitor staffing levels within burns specialist areas.

Methods – London and South East Burns Network (LSEBN) Senior Nursing forum collected data on the adapted SafeCare tool to test effectiveness of adaptations in relation to safer nursing numbers within specialist burns centres and units. All four services from the LSEBN implemented the two part changes to SafeCare within services

1. Patient acuity – assessment of patients regional nursing B levels against SafeCare B levels was completed with attention to the complexity of burn injury care and additional needs.
2. Additional tasks that burns nurses need to complete was agreed and added to the system.

Data collection was pulled from SafeCare tool during August and September 2021

Results / discussion – A clear improvement of predicted workload was seen within the tool improving the ability to staff burns specialist areas with safe working numbers of nursing and healthcare assistance. The tool highlighted the ratio of regular trained burns specialist nurses alongside agency/bank non burns trained staff supporting managers to improve recruitment and establishment numbers. A clear explanation of the burns nurses roll was seen within the additional tasks along side some unexpected increases in workload at different times. These additional workloads within services ranged from 26 - 28 additional tasks in one day which enabled the team to explore work flow and busy times within services.

Conclusion – adaptation of the SafeCare nursing tool is possible within specialist burns care to ensure predicted patient acuity supports safe nursing numbers within the specialist burn care areas. However there is a need for further testing of adapted tool in wider burns service across the UK to ensure overall safety.

Cadaveric Allograft – a potential source of filamentous fungi cross contamination and infection in burn patients?

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Wednesday afternoon sessions, Kings Suite, May 4, 2022, 16:20 - 18:25

Introduction

Saprophytic moulds are recognised as agents of human mycotic infections with profound dissemination in immunocompromised patients. Although these species are reported in recipients of haematopoietic stem cell and organ transplants, these filamentous fungi associated with burn wounds treated with cadaveric allograft is not previously reported in literature. We present a series of non-candida fungi cross contamination and infection potentially associated with the use of allograft.

Methods

A retrospective data of all positive fungal wound cultures was retrieved from hospital microbiology database of our Burns centre over a period of 5 years (Dec 2016- Dec 2021). Demographic data, Total Body Surface area (TBSA), Baux Score and Rockwood Frailty score, Immunosuppression, Intensive unit stay, trips to operating theatre, use of allograft, anatomical sites, co-existing bacterial infection, co-existing antibiotics, allograft culture, timing of positive culture, antifungal treatment and the overall outcome were analysed.

Results

Total positive fungal wound culture was 489 of which 5 was non-candida filamentous fungi (3 *Fusarium*, 1 *Mucor* and 1 *Lichtheimia*). Common factor in all these 5 patients were - Significant burn injury (TBSA Range 33-82%, Baux Score Range 107-135, Frailty score range 5-8), diabetes, use of allograft (5/5), prolonged ITU stay (Range 24-42 days), haemofiltration, multiple trips to theatre (range 2-7), co-existing bacterial infection, co-existing antibiotics, identification of fungal species in the anatomical site where allograft was placed, resistant species treated with empirical antifungals. While the association of filamentous fungi with other factors are in the range of 1-10%, with cadaveric allograft is 25%.

Conclusion

We present five patients with significant burn injuries who were colonised with filamentous fungi in combination with more typical burn wound organisms, such as, *Pseudomonas*.

All five patients with fungi colonisation / infection received allografts which stood out amongst the other common factors between these patients. This study does not prove a causal link but does present sufficient cause for concern to inform others about a potential link and to devise a future study to formally assess the hypothesis and to inform the manufacturer of the allograft.

In light of the information that has been revealed in this study, as a precaution we intend to send a small piece of allograft for mycology culture at the time of surgery. This will help provided further information prospectively to ascertain whether this potential association is real or not, whether allograft might be colonised at source, or whether allograft usage may simply predispose to colonisation with these organisms. We have forwarded this information to the manufacturer of the allograft as a precaution in the meantime.

Pyrexia in association with scald injuries in the under 5's

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Thursday morning sessions, Kings Suite, May 5, 2022, 09:00 - 11:00

Background

Scalds are the most frequent burn mechanism in children under 5. This group often suffers from a variety of common ailments, including viral illnesses and coughs, frequently associated with pyrexia. It can therefore be challenging to diagnose pyrexial source and to know whether antibiotics are indicated. Up to 25% of children under 5 with burns <10% have been shown to represent to medical care within 14 days of a burn injury (1). We examined how frequently under 5s with scalds developed pyrexia during their initial admission, prevalence of antibiotic prescribing, association of pyrexia/antibiotic use on length of stay (LOS) and the need for trips to theatre.

Method

Data were collected on patients under 5 years old admitted to the regional paediatric burns centre with a scald from September 2019 to 2020 via retrospective electronic case note analysis, inputted to Microsoft Excel and analysed in STATA 12. Averages were reported as mean with standard deviation (SD). Logistic regression assessed for potential associations between factors, reported as odds ratio (OR). LOS to total body surface area (TBSA) ratios were utilised to assess the impact of requiring antibiotics on patient's time in hospital.

Results

120 patients were assessed (65% males). Mean cohort age was 21 months (SD12.4), median 18 months (IQR14-24). Mean TBSA was 3.6% (SD3.07). Mean length of stay was 2.9 days (SD2.7). LOS:TBSA ratio mean was demonstrated as 0.94 (SD0.81).

44 patients (36.7%) had at least one episode of pyrexia ($\geq 38^{\circ}\text{C}$), the majority occurring 1 day post-burn in 18 patients (41%). Mean time until temperature spike was 2 days (SD1.4). 4 patients (9%) had pyrexia on the same day of injury. 9 patients required a readmission due to a pyrexia (7.5%).

26 patients (59%) were given antibiotics. Of those not given antibiotics, 10 had a positive viral swab, 3 had another identifiable cause (30%). 5 patients with positive viral swabs were given antibiotics (50%). None experienced adverse effects.

Adjusted logistic regression demonstrated association between pyrexia requiring antibiotics (PRA) and at least one trip to theatre with an OR of 5.1($p=0.001$), this association was present also between PRA and more than one trip to theatre (OR7.68, $p=0.001$).

Analysis showed a statistically insignificant association between PRA and LOS:TBSA ratio of >1 with an OR of 1.96 ($p=0.14$). Association between PRA and TBSA of $\leq 1\%$ showed an insignificant, inverse relationship (OR0.33, $p=0.158$). Adjusting for TBSA, there was no significant association between PRA and needing SSG (OR0.54, $p=0.55$).

Conclusion

Based on analysis of this cohort, antibiotics are given reasonably frequently. There are however a fair proportion of pyrexias seen that are due to non-burn causes or are self-limiting. Within our cohort half of the patients with positive viral swabs avoided antibiotic treatment. A lower % than prior studies required readmission for pyrexia.

There is no demonstrated association between PRA and increased LOS:TBSA ratio, probably because timely antibiotic administration should allow for a suitably prompt discharge. PRA is strongly associated with more operations and should be considered when informing patients/parents of potential clinical course.

References

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Clinical photography in burns care using a secure messaging app – a three-year service evaluation and patient satisfaction survey

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Thursday morning sessions, Kings Suite, May 5, 2022, 09:00 - 11:00

Clinical photography using a secure messaging app can enhance patient care by promoting high-quality, accurate and real-time communication within the surgical team. Our department uses Pando, a free NHS Digital and GDPR compliant clinical teamworking app. Acute trauma and burn injuries are photographed with informed consent and securely uploaded to the patient's medical record. This technology is particularly helpful out of hours and in emergency settings when our on-site medical photography team are unavailable. Our use of Pando ensures that our team avoids using other non-clinical messaging platforms, such as WhatsApp. It enhances senior clinical supervision in a busy department to improve patient care and facilitates educational opportunities across the MDT.

Objective: This project provides a real-world service evaluation of a novel smartphone technology in a UK burns unit. Quality standards were derived from British Association of Dermatology (BAD) guidelines on the use of mobile photographic devices in clinical settings. Patient satisfaction was evaluated using a Likert scale survey.

Methods: A closed-loop quality improvement project was conducted between 2018 and 2021. Usage metrics, including patient demographic and injury subtype data, were serially assessed over three audit cycles. We then collaborated with our medical photography department to design and sequentially improve a standard operating procedure for augmenting our emergency service provision. Patient satisfaction surveys were conducted with adult, paediatrics, inpatient and outpatients.

Results: In our tertiary plastics centre, burn wounds were the most common injury type photographed (37.5% of all clinical photos). Pando provides a multidisciplinary platform to review and discuss often complex clinical scenarios which improves team communication and surgical decision-making in our burns service. It also allows the multidisciplinary team to more accurately monitor burn healing using serial photographs. In cycle 1, our team shared - on average - 6.4 photos per day; this markedly increased to 19 photographs per day in cycle 3. When audited against BAD guidelines, there was very good compliance in terms of documenting consent (79.4%) and secure image upload to hospital computer systems (86.4%). A patient satisfaction survey provided very positive feedback: 91.2% patients "strongly agreed" or "agreed" that using the secure mobile app for clinical photos was easy and time efficient. 85.3% patients "strongly disagreed" or "disagreed" with the offer to attend a different clinic for medical photography instead of using Pando.

Conclusions: Our experience demonstrates that high-volume use of a secure, messaging app improves team communication and facilitates educational opportunities across a busy Burns Unit. It improves patient care without compromising information governance standards. We show that the adoption of Pando can be achieved with high compliance to BAD guidelines for mobile photographic devices and excellent patient feedback.

Nurse dependency in burn care – Can it be predicted?

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Thursday morning sessions, Kings Suite, May 5, 2022, 09:00 - 11:00

Introduction – Inadequate nurse staffing levels can have a detrimental effect on patient outcomes and quality of care (Bettencourt et al., 2020). The burn care standards state that the nursing establishment should be adjusted according to the dependency of patients. However, there is a paucity of information on measuring and predicting the nurse dependency (ND) of patients with a burn injury and in particular using this information to help assess and evidence the nurse staffing numbers required.

Purpose of the study – This study aimed to identify any relationships between ND and burn severity and whether a predictive model for burn ND could be developed.

Methodology – The UK international burn injury database (iBID) has been collecting ND information since 2012. The data from 2013-2019 was statistically analysed using multiple regression modelling to identify variables that might predict ND. Additionally, the trend in the average daily ND scores was analysed.

Results/Discussion – 153,141 ND records for 21,211 burn-injured inpatients were analysed. The results showed signals of a positive correlation between nurse dependency and burn severity. The larger the burn size the higher the ND was. This was not just restricted to the admission ND, but the average ND trajectory reduced at a different rate for different burn sizes (figure 1) and length of stay. There was a difference in the ND trend for those patients that were discharged by 1day/TBSA and those that were not. Patients who stayed in for longer had a higher starting ND score. There was also a different ND trajectory pattern for patients that did not survive. They started with a higher ND score which did not reduce unlike those that survived.

Predictive models were developed that explained >80% of the variance of the ND scores. Table 1 shows the variables that made up the best predictive models. Although these predictive models give an indication of which variables may be able to predict ND, they are currently too complicated to use in everyday practice and would require significant development to be a workable tool. It was noted that the more subjective variables, which involved professional judgement, had a greater predictive effect than the more objective measured variables. This suggests that professional judgement has a part to play in identifying nurse staffing levels.

One unexpected finding was the weaker correlation of the 'psychosocial support' needs with the ND total score.

Conclusion - This research has shown a positive relationship between ND of burn-injured patients and burn severity, supporting the clinical observation that patients with larger burns will require more nursing care throughout their inpatient stay. There is a difference in the daily trajectory of the average ND score of patients with different TBSA and also between those that were discharged by 1day/TBSA and those that were not; which could help evidence nurse staffing decisions. With further research these findings may be helpful in identifying which patients will be in for longer and whether the cause for the longer stay can be identified and prevented.

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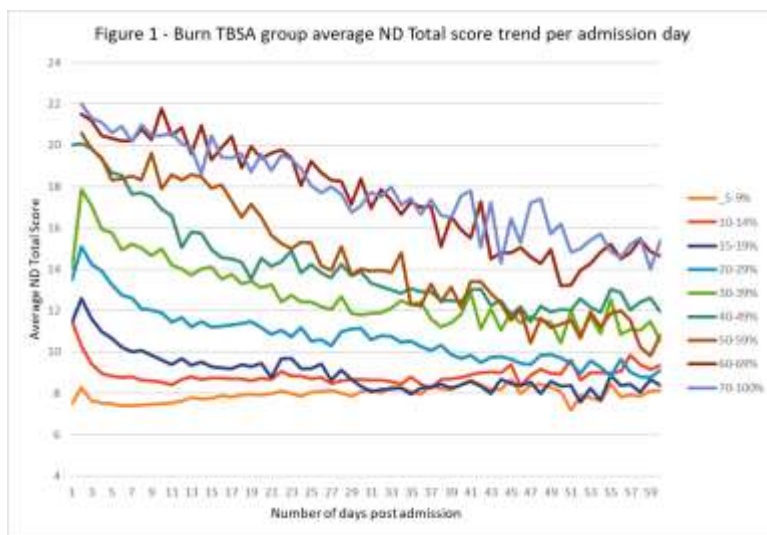


Table 1 – Variables that made up the best ND predictive models			
Model	First ND score	Maximum ND score	Average ND score
Predictors included in the model	'TBSA groups', 'group ages', 'therapy complexity' 'medical intervention' 'basic care support needs'	'TBSA groups', 'group ages', 'therapy complexity' 'medical intervention' 'basic care support needs'	'TBSA groups', 'group ages', 'therapy complexity', 'expected outcome' 'category of injury'
Variance of ND score explained by the model	86%	84%	85%

Development of a treatment pathway for enzymatic debridement in cutaneous burns: a single centre experience

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Thursday morning sessions, Kings Suite, May 5, 2022, 09:00 - 11:00

Introduction

Early debridement for deep partial and full thickness burns reduces infection, facilitates prompt depth assessment, and shortens hospital admission. Current standard of care (SOC) for burn debridement is surgical excision. Enzymatic debridement (ED) is an alternative to SOC. Proposed benefits of ED include dermal preservation, reduced need for surgical intervention and improved scar quality. Currently, use of ED is guided by a limited evidence base and the European Consensus Guidelines (ECG). However, these guidelines do not necessarily cover the practicalities of delivering ED within the health service and several “off-guideline” uses are reported.

Purpose of the study

To describe the evolution of our practice, the integration of ED within a UK burns service and our revised interpretation of outcomes, particularly healing times.

Methods

Data were collected using a prospectively maintained database of patients managed with ED at the senior author’s institution from 2016 to 2021.

Results

Since 2016 we have treated 168 patients with ED (mean TBSA 4.97%, range 0.1-36%). As shown in Table 1, the majority were flame and scald burns, however we have successfully used ED for “off-guideline” applications including mixed thermal/chemical burns (vape batteries), large burns (>30% TBSA), sequential applications, and to prevent escharotomy in circumferential upper limb and chest burns. We have found that ED improves depth assessment; many burns clinically diagnosed as full thickness retained some dermis post-ED and to date, we have only seen one “true” full thickness injury post-ED. The median number of days between burn injury and ED was 2 (IQR: 0-2), however we have successfully applied ED beyond the recommended 72 hours post-injury, up to 9 days.

Over time, we have streamlined the treatment pathway for ED. After initial Consultant review, our approach is nurse-led and ward-based, using regional or local anaesthesia (LA) in collaboration with anaesthetic colleagues. Since October 2019, we have used LA for 27 cases and regional blocks for 40 cases, including 17 epidurals or spinal blocks. Whilst the ECG recommend regional blockade for upper limb burns, there is a paucity of data regarding epidurals for lower limb burns, which we have found highly effective. This pathway has enabled us to treat 36 burns with ED as day case, with an average length of stay of 6.5 bed days (IQR 2-7).

Regarding healing time, the ECG recommend autografting for unhealed wounds after 21 days. At our unit, we are increasingly allowing slowly healing burns more time to heal spontaneously. Median time from injury to discharge from the service is 50 days (IQR 33.5-74). Despite this, in our burns reconstruction clinic it is rare for patients managed with ED to require subsequent reconstruction compared to those who are skin grafted.

Conclusion

Our protocol for ED enables us to treat burn wounds of various aetiologies and sizes in a ward-based setting, reducing theatre utilisation and length of stay. This is facilitated by our use of LA and regional blockade. As our experience evaluating wound beds post-ED has increased, we are increasingly allowing burns longer time for spontaneous healing

Table 1. Patient and burn injury details.

Mean age (range)	49 (14-97)
TBSA	n (%)
<5%	123 (73)
5 to <10%	19 (11)
10 to <30%	23 (14)
≥30%	3 (2)
Mechanism of injury	n (%)
Flame	87 (52)
Contact	17 (10)
Scald	59 (35)
Chemical	3 (2)
Electrical	2 (1)
Area of burn treated with Nexobrid^a	n (%)
<1%	7 (8)
1-2%	42 (51)
3-5%	26 (31)
≥5 to <10%	2 (2)
≥10 to <30%	5 (6)

^a Data since October 2019 (n=83), when data collection for this variable started

Combination laser treatment of post-burns scarring: a revolution in care and our 21 years experience

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Thursday morning sessions, Kings Suite, May 5, 2022, 09:00 - 11:00

(a) Introduction -

Laser treatment of burn scarring has become a very important part of our scar management pathway. A variety of aspects of burn scarring are now amenable to laser treatment. Laser treatment can begin as soon as the burn wound has healed. Our department uses a variety of lasers to target different chromophores in the scars (see Table 1). The features of burn scars amenable to laser treatment are functional and aesthetic :persistent hyperaemia and erythema, itch, dyspigmentation, scar contracture, scar contour and texture, and cosmetic appearance,

(b) Purpose of the study -

To examine our laser practice in the treatment of burn scarring over the last 22 years. We now treat approximately 1300 patients a year in the laser department, including new patients and repeat treatments. Obviously COVID 19 and the various lockdowns affected the number of patients treated during 2020 - 2021.

(c) Methods -

We examined our laser treatment database. All patients had their treatment recorded in an Excel spreadsheet and we used this as the basis of our study.

We documented all treatments on a proforma and on an Excel spreadsheet. For new patients we took a detailed patient history including date of burn, details of burn injury and treatment, current patient concerns and expectations and outlined a likely treatment strategy. We explained the procedure, safety aspects, and potential complications. Informed consent was obtained. All patients received a test patch with the relevant lasers. Immediate outcomes were documented. We recorded the type(s) of laser used, wavelength, energy settings and pulse duration (see Table 1). We also recorded the immediate post-procedure laser patient experience. Patients have separate laser notes to their hospital notes or electronic records. Patients were reviewed after 2-4 weeks and treatment started. Treatments were repeated every 4-6 weeks. Treatment continued until patient reported outcomes were satisfactory or treatment became ineffective. Patients were then either discharged or returned to follow up in the burns clinic.

Photographs were taken frequently to help document the results of treatment.

(d) Results/Discussion -

Combined laser treatment is now a very important part of our burn scar management. Of the 1300 patients treated in 2020 we selected 20 patients to examine in detail. These patients had clinical evaluations using the two part Patient and Observer Scar assessment Scale (POSAS). The main POSAS score declined from 8.3 to 5.45 from a patients perspective. We are able to treat patients as young as 4 years old in the laser room. Laser treatment of burn scarring is highly effective and well tolerated by patients. Fractionated CO2 laser requires local anaesthetic cream or injection. PDL doesn't require anaesthetic cream, but relies on the Cryogen spray for pain relief. 1300 patients were treated in 2021 and we selected 20 patients to examine in detail.

(e) Conclusion

Laser treatment of burn scars is a very useful addition to traditional scar management (physiotherapy, steroid injection and physio and occupational therapy).

We would encourage other burn units to incorporate laser treatment in burn scar management

References

Laser management of hypertrophic burn scars: a comprehensive review

Kevin M Klifto, Mohammed Asif, C Scott Hultman

Burns Trauma. 2020; 8

Lasers and ancillary treatments for scar management: personal experience over two decades and contextual review of the literature. Part I: Burn scars

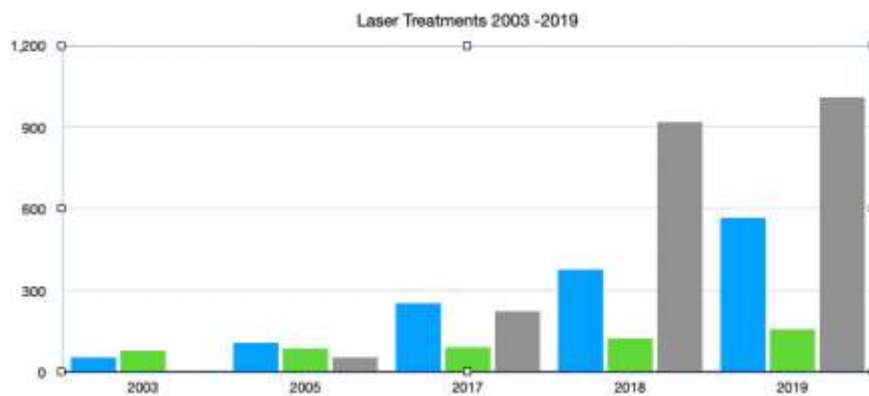
Rory B McGoldrick, Adam Sawyer, Christopher R Davis, Evgenia Theodorakopoulou, Maxwell Murison

Scars Burn Heal. 2016 Jan-Dec; 2

Lasers and ancillary treatments for scar management Part 2: Keloid, hypertrophic, pigmented and acne scars

Rory Boyd McGoldrick, Evgenia Theodorakopoulou, Ernest Anthony Azzopardi, Maxwell Murison

Scars Burn Heal. 2017 Jan-Dec; 3



Laser	Wavelength (nm)	Target chromophore	Mechanism of action	Treatment outcomes
Pulse Dye Laser	595	Red blood cells	Extended Photothermolysis	<ul style="list-style-type: none"> - Fibrosis and clearance of scar increased vascularity - Reduction in itch - Improvement in appearance
Alexandrite Tri Vantage (ATV)	755 (Q switched or long pulse duration)	Melanin & melanocytes Tattoo pigment	Photo-acoustic shattering of pigment/melanin Heating and destruction of hair follicle	<ul style="list-style-type: none"> - reduction in hyper-pigmentation - Hair removal
Fractionated CO2 Lumenis CORE	10600	Water	Evaporation/ablation	<ul style="list-style-type: none"> - superficial burn scar contracture release

Laser	Wavelength (nm)	Target chromophore	Mechanism of action	Treatment outcomes
Lumenis ScaarFX	10600	Water	Evaporation/ablation	_ deeper burn scar contracture release

Laser Doppler Imaging – Is Poor Perfusion an Accurate Predictor of Healing Time?

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Thursday morning sessions, Kings Suite, May 5, 2022, 09:00 - 11:00

Introduction: Laser Doppler Imaging (LDI) has been validated in numerous studies as an accurate method of measuring intermediate burn perfusion. Burn perfusion has been shown to directly correlate with burn depth.

Purpose of the study: To identify if the proportion poor blood flow (blue) within an LDI image, as a proportion of Total Body surface area (TBSA), independently correlates with healing time.

Methods: Patient age, gender, burn aetiology, and burn surface area were collected from the IBID (International Burn Injury Database). All LDI images were copied from the MoorLDI2-BI- Laser Doppler (MLDI) Scanner, onto Adobe Photoshop® version 2020 for pixel counting analysis and calculation of % TBSA (Total Body Surface Area) blue. Multiple linear regression analysis determined if there was a proportional relationship of each parameter (age, gender, % TBSA Blue and comorbidities) with healing time.

Results/Discussion: 110 patients with 197 burns were scanned with LDI. Median age was 5 years (IQR 1-6). Median burn surface area was 1.5% (IQR 1-2.4). 56.4% of patients were male and patients were scanned an average of 2.68 days (SD±1.37) following burn injury. Number of physical comorbidities and age were found to have a statistically significant relationship with healing time ($p=0.03$, $p=0.002$). Gender and % TBSA blue did not have a statistically significant relationship with healing time ($p=0.07$ and $p=0.058$ respectively). There was a statistically significant difference in the mean healing time between burns with and without blue (3.43 weeks vs. 2.80 weeks, $p=0.0001$). % TBSA Blue was more than four times higher in the operated group (0.48% vs. 0.11%) and was shown to have a statistically significant relationship with decision to operate ($p=0.027$). Age, gender and number of comorbidities did not have a statistically significant influence on decision to operate ($p=0.07$, $p=0.50$ and $p=0.49$).

Conclusion: % TBSA blue was not found to be a reliable individual indicator of burn healing time, but the presence of blue within an LDI image, advanced patient age and increased number of comorbidities did have a statistically significant relationship with healing time. This suggests their standardised inclusion into management decisions regarding intermediate depth burns is warranted.

Validation of the Burnt Hand Outcome Tool (BHOT): a patient led questionnaire for adults with hand burns

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Free Papers – Session 4, Kings Suite, May 5, 2022, 11:30 - 12:30

Introduction

The Burnt Hand Outcome Tool (BHOT) is a patient led questionnaire developed specifically to assess the impact of a hand burn on an adult patient. It was developed by the amalgamation of multiple pre-existing patient-reported hand and burn questionnaires. To our knowledge at the time there was no validated patient reported measure specifically for those who has sustained a burn to the hand. This study was carried out to validate the BHOT using psychometric tests in adult patients.

Methods

The questionnaire was developed with four equally-weighted domains 1: Specific hand tasks 2. General ability to carry out daily activities 3. Appearance, scar, pain and sensation and 4. Emotional, social and work impact. The questions were drawn from a mixture of hand and burn outcome measures, following expert panel review. Ethical board approval was obtained.

Patients were asked to complete a questionnaire at five time points. These were: before (completed retrospectively on recruitment); healed (when minimal or no dressings to the hand were required); 3 months; 6 months and 12 months following the burn. Demographic information on patient age, sex, %TBSA, severity of burn, method of injury and treatment received was collected contemporaneously.

Validation was assessed by measuring reliability; content validity; criterion validity i.e. comparing BHOT v. DASH (Disabilities of Arm, Shoulder and Hand) scores and BHOT v. TAM (Total Active Motion); predictive validity; construct validity; and responsiveness.

Results

Ninety-eight patients were initially enrolled into the study. The questionnaires completed at each time point was: 86 at before; 52 at healed; 29 at 3 months; 31 at 6 months; 28 at 12 months. i.e. 226 BHOT questionnaires and 226 DASH questionnaires.

Reliability (internal consistency) was excellent (Cronbach's alpha 0.920 and 0.968 at before and healed). Criterion validity showed excellent correlation between BHOT and DASH scores (Spearman's rank r values >0.78 , $p < 0.001$). There was a good, significant inverse relationship between TAM and BHOT (r value -0.58 , $p < 0.001$). Construct validity showed a significant difference between the BHOT scores of patients with severe v. non severe hand burns at each of the post-burn time points measured ($p < 0.005$) on Mann Whitney Wilcoxon testing. Responsiveness showed a high sensitivity in the ability of BHOT to detect changes over time (large Cohen's d and large SRM), more so than was demonstrated by DASH. In other words, the BHOT was able to accurately differentiate between patients with severe and less severe burns, and reflect how their outcomes changed during the first year post burn.

Conclusion

The BHOT is the first patient reported tool specifically designed for patients with hand burns, and has been validated in an adult population. It is more responsive over time for this population than the DASH score. It accurately reflects the severity of a burn sustained. It has been translated and is currently being validated in different populations around the world.

Future Changes: developments from patient reported experience of an Adult Burns Clinic

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Free Papers – Session 4, Kings Suite, May 5, 2022, 11:30 - 12:30

Introduction/Purpose

Despite developments in the pharmacological management of pain, dressing changes for people attending an outpatient Adult Burns Clinic (ABC), at a specialist unit, can still be painful and unpleasant. A project is underway to improve the patient experience of this service. Suggestions for improvement include the introduction of non-pharmacological approaches to reduce distress and improve the management of pain. This could include providing better information, prior to and during attendance, cognitive techniques, distraction, info-graphics, music and relaxation techniques. We are reporting on the initial stage of this project, which aimed to explore patients' current experiences of attending the ABC, prior to implementing any change.

Methodology

A 19-item questionnaire was developed by the project team, designed to gather feedback from patients on a range of aspects, such as pain management, understanding of procedures and communication. The questionnaire was administered via iPad, by clinic Nursing staff and an Assistant Psychologist.

Results

29 patients completed the questionnaire. Responses showed that some patients reported being offered relaxation techniques (N=4) or physical movement (N=5), but none reported being offered cognitive techniques, mindfulness, music/radio or imagery to help manage their pain. Unstructured verbal feedback was generally positive and directed towards the clinic staff, for example; "The nurse was lovely. She was good as gold".

Staff administering the questionnaire noted that clinic attendees seemed surprised to be asked questions about pain management and when directly prompted, feedback suggested that the dressing change had been painful, but they felt well supported, for example; "Well....it was really horrible having the dressing changed. But the team are lovely here, everyone's lovely".

Discussion

A small number of patients reported being offered relaxation techniques and/or physical movement, which indicated that there is scope to further develop non-pharmacological approaches for pain management in the ABC.

More interesting was their feedback, which suggested that patients were very grateful for the support of the staff, during what they expected to be a difficult procedure. The added implication was that they did not seem to have expectations of taking an active role in controlling their pain during a dressing change.

Conclusion

These findings suggest that non-pharmacological techniques are sometimes used within the ABC. However, what appeared to be more important was the verbal and non-verbal feedback, indicating patient expectations. This suggested that they did not expect to be involved in controlling their pain during dressing changes. These findings suggest that prior to introducing additional non-pharmacological approaches, providing education for both patients and staff about the multi-factor nature of pain, to change expectations, is likely to be an important first step towards improving the patient experience of ABC.

The role and effectiveness of remote video consultations in burns management – a single-centre experience

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Free Papers – Session 4, Kings Suite, May 5, 2022, 11:30 - 12:30

Introduction

In recent years, healthcare has seen a significant transition from face-to-face to telephone and video consultations. The COVID-19 pandemic has further accelerated this transition with growth of 'virtual clinics'. The St Andrew's Centre for Burns has been using telemedicine as an integral part of burns care for many years. As a result of the COVID-19 pandemic, new remote consultation software systems have been utilised in burns follow-up and care. Although considered a safe alternative during the pandemic, objective evidence of clinical or patient perception towards remote consultations is lacking.

Aim

The aim of this study was to examine how remote consultations in burns care are perceived by patients and clinicians, respectively.

Methods

Between October 2020 and March 2021, 79 patients received a remote consultation in St Andrew's Centre for Burns. During the consultation, an independent observer was present to facilitate the dissemination of the clinician and patient questionnaire. Clinician questions included: ease of communication; the ability to discern scar characteristics such as colour, pigmentation, pliability, height, itchiness, and pain; and whether there is preference for future remote consultations compared to face-to-face consultations. Patient questions included: ease of communication; concerns regarding call security; preference in favour of or against future remote consultations compared to face-to-face; cost saving for not having to attend hospital; and distance normally travelled to attend hospital. A Likert scale (1 to 5) and binary system (1=Yes, 0=No) was utilised for statistical representation. Cost-saving and distance were expressed as continuous variables.

Results

Clinicians and patients found communication to be easy or very easy, with mean ease of communication at 4.5 ± 1 . Clinicians were able to assess scar colour in 85.5% of patients, scar pigmentation in 82.1% of patients, scar pliability in 67.9% of patients, scar height in 66.7% of patients, scar itch in 84.6% and scar pain in 85.9% of patients. 99% of patients had no concerns regarding security of call. 65.7% of patients stated that they would prefer consultations to be remote in the future. In 67.7% of cases, clinicians stated that they would prefer consultations to be remote in the future.

Conclusion

Our study demonstrates the technical feasibility, clinical effectiveness, and user satisfaction of remote consultations in burns, nevertheless, it is not in itself a proof that remote consultations are always safe or practical. That said, it may prove an invaluable resource in long-term follow-up given prudent patient selection and informed decision making. Further studies are required to formally validate this new practice and offer patients the confidence of high-quality care.

Helping you to Heal: Developing a burns specific model of patient/ family education and support for children and families after burn injury.

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Free Papers – Session 4, Kings Suite, May 5, 2022, 11:30 - 12:30

Introduction and Purpose

The provision of patient/ family information is essential in the delivery of quality health care services and Burn care is no exception. However, we must look beyond simple information provision, e.g., burn care leaflets, to also provide patient/ family education ensuring they obtain the knowledge required to become active participators in health care tasks to facilitate burn care rehabilitation and recovery. There are three overarching phases to this project: model development; the teaching of burn care staff in how to employ the model; and lastly, the subsequent embedding of the model within clinical practice for core members of the burn care team. The aim of this presentation is to share the development of the model and one key outcome, a prototype introductory animated video.

Methods

Core members of the burns multi-disciplinary team used a collaborative approach to create a bio-psycho-social model of patient and family education that was memorable, child friendly, burn-care specific and promoted self and family participation in care. Ideas were collated and discussed. An iterative process identified 7 key domains of burn care and the most likely progression towards recovery within each. Each aspect denoted by a different colour providing a visual aid that is individualised according to the child and family's stage of recovery. Navigating the path to recovery within the model is determined by the whole family unit being empowered to transition from their dependence upon the burn care team to optimally, full independence.

Results

Early feedback on the model was positive. Staff felt it was clear, concise, measurable, and sufficient. They could visualise it being used in practice and welcomed the introductory video in being innovative. Identified potential limitations included the 'generic' nature of the model and its appeal to teenagers who may question its appropriateness to their age and stage of development. However, this was tempered by end-user feedback which valued the iterative process of development and the input of the child narrative about recovery in the video; it was felt to reflect authenticity.

Discussion

Patient and family health education approaches require innovation and creativity to fully engage and enable families in undertaking health care activities. The "me first", "alphabet strategy" and "ready, steady, go" approaches have been adopted and adapted within many children's health care settings and serve as exemplars. In this work, a story-telling chronicle in the introductory video offered families new to the experience of burn injury a real-world illustration of the challenges and successes of the patient journey. It is recognised that this burn-specific model will evolve with its wider use. Initial evaluation suggested high practical utility.

Conclusion

This bio-psycho-social model of patient and family education and support befits a family-centred care framework. It promotes early understanding of the child's health status in an engaging, child-friendly way. As an evolution of this framework, an introductory, prototype video was produced serving as an effective learning tool across the spectrum of paediatric burns patient groups.

From surviving to thriving my rehabilitation journey

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¹The Katie Piper Foundation, , United Kingdom

Free Papers – Session 4, Kings Suite, May 5, 2022, 11:30 - 12:30

Introduction:

Catrin Pugh suffered 96% burns and was given one in 1,000 chance of survival after a crash in France in 2013.

She spent eight months in hospital and had more than 200 operations.

Following her fantastic NHS burns care she embarked on a journey of aftercare and rehabilitation including support from The Katie Piper Foundation, accessing a private rehabilitation centre in France and a successful Individual Funding Request (IFR) to access private physiotherapy at home. Having the opportunity to access this combination of vital support enabled her to reach her full potential, and spurred Catrin on to train as a physiotherapist and now works supporting other survivors in their rehabilitation for The Katie Piper Foundation.

Objectives:

Demonstrating through personal experience how once survivors of burns have regained physical function, they need to have the right mix of expertise and support to embark on their rehabilitation.

Methods:

- Catrin's own reflections
- Reflections from other survivors of burns
- Summarised outcomes from PRO scales used within KPF rehabilitation services
- Reflections from NHS burns services on the positive outcomes from a collaborative approach to rehabilitation

Results:

Catrin has been able to use her own personal experience and training as a physiotherapist to highlight the importance of aftercare and rehabilitation.

She acknowledges the fantastic lifesaving work undertaken by the NHS, whilst highlighting the importance of the next steps and having the support of trained and skilled professionals working together in a holistic way.

Discussion/Conclusion:

This oral presentation will show from a survivor of burns and now KPF physiotherapist, the vital role aftercare and rehabilitation plays and how this is approached by The Katie Piper Foundation. Also demonstrating the importance of working in collaboration with the NHS and other healthcare providers to facilitate rehabilitation in the patient's best interest.

Early tracheostomy and active exercise programmes in adult intensive care patients with severe burns

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Free Papers – Session 4, Kings Suite, May 5, 2022, 11:30 - 12:30

Introduction

Tracheostomy is a strategy often employed in patients requiring prolonged intubation in ICU settings. Evidence suggests that earlier tracheostomy and early active exercise are associated with better patient centred outcomes. Severe burn patients often require prolonged ventilatory support due to their critical condition, complex sedation management and multiple operating room visits. The optimal timing for tracheostomy in this population is still unclear.

Purpose of the study

The purpose of the study was two-fold; to evaluate the impact of early tracheostomy on the day active exercise in ICU could be started, and, to evaluate the effect on patient- centred outcomes. We compared the ventilation days, length of ICU and hospital stay and physical functional independence using Functional Assessment for Burns (FAB) scores at ICU and hospital discharge and discharge destination in our patients who received early tracheostomy versus late tracheostomy.

Methods

We conducted a service evaluation where we compared the outcomes of a prospective group of consecutive adult burn patients admitted 2017 - 2019 who received early tracheostomy (≤ 10 days) to a retrospective group of consecutive adult burn patients admitted 2012 - 2016 who received late tracheostomy (> 10 days). All patients satisfied the American Burns Association criteria used to define severe burn injury and all required prolonged ventilatory support. All patients received the same standard of care according to established protocols in our service. Patients were screened daily for readiness for spontaneous breathing trials and readiness to commence active exercise. Data was collected from electronic patient health records.

Appropriate statistical tests were performed.

Results/ Discussion

There were 19 patients in the early tracheostomy group compared to 22 patients in the late tracheostomy group. Early tracheostomy was associated with fewer days mechanical ventilation (16 versus 33, $p= 0.001$), shorter hospital length of stay (65 versus 88 days, $p= 0.018$), earlier first day of active exercise (day 8 versus day 25, $p < 0.0001$), and higher Functional Assessment for Burns scores at hospital discharge (32 versus 28, $p= 0.016$).

Conclusion

Early tracheostomy in patients with severe burns is associated with earlier active exercise, fewer days of ventilation, shorter length of hospital stay and better physical functional independence on discharge from hospital.

Effect of autologous fat transfer in acute burn wound management: A randomized controlled study

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Friday morning sessions, Kings Suite, May 6, 2022, 09:00 - 11:00

Objective

The use of fat grafting is being widely used for different indications one of which is wound healing. In this study, we compare the use of autologous fat grafting (AFG) as a novel indication in acute burn wound healing and burn scarring to the conventional methods of burn wound management both clinically and histologically. Several small observational studies demonstrated the effect of the AFG in the healing of chronic wounds, different vascular ulcers, or the effect on scars yet no randomized controlled trial is available to compare its role with conventional methods.

Methods

The study was a prospective, open-label single-center, randomized control clinical trial that included 100 patients with superficial and deep dermal burns from March 2019 to March 2020 randomized to AFG protocol consisted of a single injection of autologous fat grafting then dressed with nano fat (Group A) or conventional methods of serial dressings with 1% silver sulphadiazine or other topical agents (Group B). Inclusion criteria included newly admitted burn patients with affected total body surface area (TBSA) (10%–25%) while exclusion criteria included burns patients with affected TBSA of < 10% or > 25%, or loss of subcutaneous fat, fascia, muscles, and bones, inhalational burn, and burns in genitalia, perineum, and perianal areas and co-morbidity(ies) that might affect wound healing or eligibility for anesthesia and surgery. Also, results were confirmed by histological analysis for samples from both groups by light microscopic examination, and the nano-fat was subjected to flow cytometric analysis of the cluster of differentiation (CD) markers of mesenchymal stem cells markers CD 90, CD44, CD45, CD 73, and CD 34. (ClinicalTrials.gov Identifier: NCT03791710)

Results

We found a significant reduction in total hospital stay days ($p = <0.001$), less further skin grafting ($p = 0.003$), less contracture formation ($p = <0.002$) while scar texture improved ($p = <0.001$) in group A compared to group B. Flow cytometric analysis documented that the nano-fat was positive to CD 90, 73, 44, 45 and 34.

Conclusion

In a comparison between AFG protocol to the conventional methods in the treatment of acute burn wounds, AFG protocol was associated with significant clinical improvement in the form of lower hospital stay time, lower incidence of scarring or contracture, and lower skin grafting use which was confirmed by serial photographic and histological assessment.

A



B



C



Table 4: Comparison between the two studied groups according to different parameters

	Cases (n = 50)	Control (n = 50)	Test of Sig.	p
Number of times to OR for each case				
Mean ± SD.	1.3 ± 0.6	2 ± 1.4	U=807.0*	<0.001*
Median (Min. – Max.)	1(1 – 3)	2(1 – 6)		
Need for opioid analgesia				
No needed	39(78%)	1(2%)	χ ² =60.167*	<0.001*
Needed	11(22%)	49(98%)		
Frequency of dressing change				
Daily	5(10%)	50(100%)	χ ² =81.818*	<0.001*
Day after another	15(30%)	0(0%)		
Every 2 days	30(60%)	0(0%)		
Use of Chemical Topical agents				
No Topical medication	45(90%)	0(0%)	χ ² =81.818*	<0.001*
Topical medication	5(10%)	50(100%)		
Need for skin graft				
No skin graft	40(80%)	26(52%)	χ ² =8.734*	0.003*
Skin graft	10(20%)	24(48%)		
Frequency of visits in the outpatient clinic				
Mean ± SD.	2 ± 1.8	10 ± 2.4	U=10.0*	<0.001*
Median (Min. – Max.)	2(0 – 5)	10(5 – 14)		
Re-admission				
No	40(80%)	31(62%)	χ ² =3.934*	0.047*
Yes	10(20%)	19(38%)		
Hospital stay				
Mean ± SD.	12.6 ± 3.8	19.2 ± 4.2	t= 8.265*	<0.001*
Median (Min. – Max.)	13.5(1 – 20)	19(10 – 30)		
Scar				
Scar Texture				
Smooth texture	40(80%)	16(32%)	χ ² =23.377*	<0.001*
Rough Texture	10(20%)	34(68%)		
Surface level to surrounding				
Normal	45(90%)	14(28%)	χ ² =39.727*	<0.001*
Hyper trophic	5(10%)	36(72%)		
Hyper pigmented				
Normal	40(80%)	8(16%)	χ ² =41.026*	<0.001*
Colored	10(20%)	42(84%)		
Hypo pigmented				
Normal	45(90%)	10(20%)	χ ² =49.495*	<0.001*
Colored	5(10%)	40(80%)		
Contractures				
No	45(90%)	32(64%)	χ ² =9.543*	0.002*
Yes	5(10%)	18(36%)		

χ^2 : Chi square test

t: Student t-test

U: Mann Whitney testp: p-value for comparing between the studied groups

*: Statistically significant at $p \leq 0.05$

The use of a microbial cellulose dressing (EpiProtect®) in paediatric facial burns: a single centre experience

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¹Broomfield Hospital, CHELMSFORD, United Kingdom

Friday morning sessions, Kings Suite, May 6, 2022, 09:00 - 11:00

Introduction:

EpiProtect® is a biosynthetic cellulose dressing that is indicated for the treatment of superficial and mid dermal thickness burns. It can be used safely in children. We highlight our experience with paediatric facial burns treated with EpiProtect in a single regional burns service.

Purpose:

The primary aims were to assess EpiProtect®'s ability to facilitate burn wound healing, assess its impact on pain, learn how to use it most effectively and understand any complications. Secondary aims were to evaluate user experience, the frequency of dressing changes, and patient satisfaction.

Methods:

A retrospective review was conducted of children younger than 16 years old at a single specialist paediatric burns centre from January to November 2021. Inclusion criteria were burns larger than 0.5% of the total body surface area (TBSA) affecting the face and scalp from any aetiology other than friction injuries. Pain scores were compared before and after placement of EpiProtect, while length of stay and duration of outpatient follow up were compared to observed clinical parameters..

Results:

Twenty-two children met the inclusion criteria and received EpiProtect® (median age 27 months, range 15-190 months). 31.8% (n=7) had superficial dermal thickness (SDT) burns and 68.2% (n=15) had mid dermal thickness (MDT) burn. The median TBSA was 3% (range 0.5%-5%). All burns healed completely with the median number of outpatient visits to be 1 (range 0-3). There was a significant reduction of the pain score after day 2 postoperatively ($p < 0.001$) but no significant relationships between the length of stay and outpatient follow-up ($r = -0.398$, $p = 0.066$) nor between burn depth and wound exudate ($p < 0.999$). Finally, there was no significant difference in length of stay between patients with mid dermal and superficial dermal depth ($p = 0.915$).

Conclusion:

Based on these early results, EpiProtect® can reduce pain perception, has high patient satisfaction, and a low rate of complications. It can be safely used in both superficial and mid dermal burns of the face. The lack of animal or human constituents in its preparation makes it acceptable to all cultural and religious backgrounds.

'A positive spin' - an audit of efficacy and suitability of electrospun polymer dressing in management of burns associated wounds

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Friday morning sessions, Kings Suite, May 6, 2022, 09:00 - 11:00

Introduction

SpinCare™ is an electrospun polymer based dressing that has recently been introduced. The dressing is one of the new alternative dressings used to manage superficial partial thickness burns and is considered to be similar to Biobrane in that after a short while can be exposed and allows movement.

Purpose of the study

To find out the efficacy and suitability of SpinCare™ on donor site dressings in burns patients at Queen Victoria Hospital before more widespread use for superficial partial thickness burns.

Method

A proforma was designed to capture clinical assessment during follow-up appointments in our Burns Dressing Clinic. We looked at the appearance of the wound on photographs, overall healing time, patient acceptability, complications and cost effectiveness of the treatment. Data was collected over a 12-month period.

Results

Total of 9 patients were identified as having had SpinCare™ applied. All cases were applied to the donor site, in theatre by a plastic surgery doctor. Average time of healing was 9-15 days and there were no recorded complications with the dressing. All dressings required less than 1ml of SpinCare™ polymer vial. Patients found the dressing acceptable in regard to pain and managing the dressing.

Conclusion

SpinCare™ used as a primary dressing on donor site in burns patients showed wound healing time and low complication rates comparable to best alternatives currently in use. The lower cost of SpinCare™ dressing makes it a more cost-effective choice when compared to Biobrane or similar. Our results suggest there is scope for future use of SpinCare™ on primary superficial partial thickness burns and future work will look at the size of burn that this dressing can be used for.

The role of anti-factor Xa measurement in major burns: literature review and survey of UK practice.

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Friday morning sessions, Kings Suite, May 6, 2022, 09:00 - 11:00

Introduction

Patients with major burns (15% total body surface area (TBSA)) are at high risk of developing venous thromboembolism (VTE), with studies reporting incidences as high as 43%. [1] Endothelial damage secondary to thermal injury, hypercoagulability and prolonged periods of immobility are all contributing factors. Factor-Xa is a component of the clotting cascade and converts antithrombin to thrombin, which proceeds to form a clot. Low-molecular weight heparin (LMWH) inhibits this conversion, and its activity can be measured using a serum anti-factor Xa assay (AFXa). Recent literature has reported low AFXa levels in burns patients despite administration of LMWH, indicating subtherapeutic dosing. Some UK burn centres have therefore introduced measurement of AFXa levels to enable dose adjustment and adequate LMWH administration.

Purpose of the study

The purpose of this study was to identify common practice for VTE prophylaxis in UK burn facilities caring for adults with major burns. A literature review on AFXa measurement in burn injuries was also performed, with the aim of summarising available evidence on AFXa measurement in burns.

Methods

A literature search was performed using PubMed and Embase. Studies on adult burns patients who underwent AFXa measurement were included. Data on TBSA, prophylaxis regime, AFXa levels and protocol for dose adjustment were recorded along with VTE incidence and anticoagulation-related complications. A 7-point questionnaire was disseminated to medical staff at all burn centres and units in England and Wales. Questions detailed VTE prophylaxis regime, use of AFXa measurements and LMWH administration post-discharge.

Results/discussion

Seven papers met inclusion criteria. A total of 350 patients were included with an overall mean TBSA of 23%. Five papers included major/ITU burns and 2 included all burn sizes. Six used enoxaparin as their prophylactic agent and 1 utilised unfractionated heparin. Enoxaparin 40mg twice daily (BD) was administered in 3 vs 30mg BD in 3. All measured AFXa levels 3-5 hours post LMWH dose. Initial AFXa levels were subtherapeutic (<0.2U/mL) in 69% of patients with minimal difference between the 30mg and 40mg groups (62% vs 64%). Five studies adjusted LMWH dose in response to sub-prophylactic AFXa levels and 2 did not document dose adjustment. Two documented their dose adjustment protocol; both increasing dose by 20%. The average VTE incidence was 2.75% in all burn sizes. There were no reported LMWH complications.

Thirteen of fourteen (93%) departments responded to the survey. Eleven (85%) administered enoxaparin and 2 administered tinzaparin. Three (23%) administered higher doses of LMWH for major burns patients, and five (38%) measured AFXa levels. One measured AFXa in intensive care, but not after stepdown to the ward. Twelve (93%) discontinued LMWH on discharge, and one continued LMWH after discharge in patients with lower limb burns and reduced mobility.

Conclusion

Subtherapeutic AFXa levels in 69% of burns patients is alarming and highlights the importance of AFXa measurement and subsequent LMWH dose adjustment in the prevention of VTE. UK burn facilities are increasingly utilising AFXa measurement to guide LMWH dosing. It will be interesting to see whether these units report reduced incidence of VTE.

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Managing non-burn skin loss in a Paediatric Burn Centre: a 6-year experience

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Friday morning sessions, Kings Suite, May 6, 2022, 09:00 - 11:00

Introduction:

In 2018 the British Association of Dermatology produced guidelines for the management of Steven-Johnson Syndrome (SJS)/Toxic Epidermal Necrolysis (TEN) in children and young people. One core recommendation was the transfer of patients without delay to a PICU, or burns centre with the experience and facilities to manage extensive skin loss, in those with greater than 10% BSA epidermal involvement.

At our burns centre, it was anticipated that this may lead to a substantial increase in workload for the management of such patients. This would have potential implications for both staffing and resources (including therapy and dressings), which were not increased in recent years.

Purpose of the study:

We therefore undertook a study to examine the skin loss conditions that our Burns MDT managed in close collaboration with our Dermatology colleagues.

Methods:

We carried out a retrospective review of patients with non-burn injuries at Birmingham Children's Hospital, UK. Patients were identified using database search queries through the International Burn Injury Database (IBID), and Hospital Episode Statistics (HES) data. Patients' records were then manually reviewed to determine cause of skin loss, %TBSA, and the clinical course.

Data was collected between 01/01/2016 to 01/01/2022, a time period chosen to span the time prior to and immediately following the publication of the guidelines.

Results:

During the study period, we identified 17 patients (M: 11; F: 6) who were managed for exfoliative and necrotising diseases of the skin. Patient age ranged from 1-week to 15-years old (with an average age of 5-years 0-months). Mean %TBSA of skin involved was 56% (ranging from 25% - 95%) and mean length of stay was 40 days (range 4-121 days). It was identified 13 patients required PICU admission during their stay, and one death was observed.

Causes of skin loss included: Staphylococcal Scalded Skin Syndrome (SSSS) (n=6), Toxic Epidermal necrolysis (n=4), Meningococcal Septicaemia (n=3), Purpura Fulminans (n=1), Necrotising Fasciitis (n=1), Steven-Johnsons Syndrome (n=1), and Eczema Herpeticum (n=1).

Discussion:

Interestingly, despite national focus on SJS/TEN in terms of both clinical guidelines and resource allocation; we found that the majority of major skin loss conditions managed in our burn centre are of other aetiologies.

In comparison, similar studies at adult burn units show that SJS/TEN makes up a much higher proportion of patient workload; which correlates with reported increasing incidence with age. While there are other aetiologies (such as Bullous pemphigoid, and Pemphigus vulgaris) in adult units, this is still much less than in the paediatric population.

Both diagnosis, and management can be challenging and input from multiple specialities is required – and in some cases multiple PICU admissions may be required.

Conclusions:

SJS/TEN is a major part of the workload in a Paediatric Burns Centre, but is less commonly seen compared to other exfoliative and necrotising diseases of the skin. MDT input is crucial in successfully managing patients short and long-term, and patient outcome is usually positive.

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Introduction of an enhanced venous thromboembolism protocol for adults with major burns: initial results from a regional burns centre

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Friday morning sessions, Kings Suite, May 6, 2022, 09:00 - 11:00

Introduction

Major burns are associated with increased incidence of venous thromboembolism (VTE). Factor Xa is an enzyme involved in both the intrinsic and extrinsic coagulation pathway, the role of which is to generate thrombin to assist with clot formation. Studies have shown that the levels of anti-factor Xa (AFXa) are reduced in major burns, which likely contributes to the development of VTE. We therefore introduced a protocol in our regional burns centre to monitor AFXa levels and give enhanced VTE prophylaxis via a higher dose of low molecular weight heparin (LMWH) to adults with major burn injuries (total body surface area (TBSA) of 15% and over).

Purpose of the study

The purpose of this study was to investigate patient response to the enhanced dose of VTE prophylaxis, measure AFXa levels, adjust LMWH dose accordingly, and quantify subsequent development of VTE.

Methods

We conducted a prospective cohort study on adults admitted to our burns centre with a major burn. Patients already on anticoagulation pre-admission and patients under 16 years of age were excluded. As per our protocol, patients were administered 4,500 units of subcutaneous tinzaparin twice daily. Serum AFXa measurement was performed 3-4 hours after the third dose. AFXa levels between 0.2-0.4IU/mL were considered prophylactic and patients continued with the same tinzaparin dose. Patients with subprophylactic levels (<0.2IU/mL) were discussed with haematology and LMWH dose was increased. Once in range, AFXa levels were measured weekly. LMWH was discontinued on discharge for all patients. Data was collected on TBSA, LMWH dose, initial AFXa level, LMWH-related complications and the incidence of VTE both during admission and after discharge.

Results

Six adult patients with a mean TBSA of 24% (20-41%) were admitted to our burns centre between July and December 2021. One patient took rivaroxaban prior to admission so was excluded from the study and one patient did not receive enhanced prophylaxis on admission so an initial AFXa level was not recorded. The average modified Baux score was 67. Two (50%) patients had a subprophylactic first AFXa level and required an increased dose of LMWH. Interestingly, all patients with a modified Baux score of >50 required a dose adjustment at some stage during their admission due to subprophylactic AFXa levels, with 3 (75%) requiring more than one dose adjustment. The patient who was not prescribed enhanced prophylaxis developed a pulmonary embolism (PE) on day 2 of the admission and was given treatment dose LMWH. She was subsequently found to have subtherapeutic AFXa levels and required one LMWH dose increase. One patient developed deep vein thrombosis (DVT) after discharge, having been within the prophylactic range throughout their admission.

Conclusions

Our study produced similar findings to other studies on AFXa levels in patients with major burns. We therefore recommend routine monitoring of AFXa levels and administration of increased dose LMWH in patients with a TBSA of 15% or greater with the aim of preventing VTE. Continuation of LMWH post-discharge should also be considered in patients with ongoing reduced mobility.

Are acute burn injuries associated with long-term mortality? A systematic review and meta-analysis

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Friday afternoon sessions, Kings Suite, May 6, 2022, 11:40 - 15:00

Introduction

Acute burn injuries are a major global cause of morbidity and mortality. Recent trends demonstrate a temporal reduction in the severity and death rates attributable to burns. However, emerging evidence suggests that the pathophysiological impact of this systemic insult, may have chronic physical and psychological health consequences.

Purpose of the study

We conducted a systematic review and meta-analysis to investigate the association between burn injuries and long-term mortality, in patients surviving to initial discharge from hospital.

Methods

The review protocol was prospectively registered on PROSPERO (CRD42021282696). Variations of the terms “burn”, “mortality” and “long-term” were combined to perform a literature search using Medline and Embase databases. Strict inclusion and exclusion criteria were then employed to identify relevant studies comparing long-term mortality amongst burn survivors to non-injured controls. When the same output metrics related to mortality were reported, meta-analyses were undertaken using a random effects model. Risk of bias was assessed using the Joanna Briggs Institute (JBI) critical appraisal tool.

Results

The literature search returned 3,244 hits. Following de-duplication and title/abstract and full-text screening, six studies (seven articles) were identified for inclusion in this review. They were predominantly based in high-income countries, with each comparing burns’ survivors to matched non-injured controls from the general population. Studies included in the meta-analysis had a combined unadjusted odds ratio of 2.648 (1.839 – 3.813; 95% confidence interval) and adjusted mortality rate ratio of 1.592 (1.312 – 1.933; 95% confidence interval). Thus, burn survivors demonstrated greater long-term mortality rates when compared to their non-injured counterparts. Similar findings were illustrated in the remaining studies, with the exception of one study which found no significant difference between the two groups.

Conclusions

It is widely recognized that burn injuries have chronic consequences across several organ systems. Our review suggests that these injuries are also associated with greater long-term mortality rates. The underlying mechanism is unclear and further work is required to establish the role of certain factors such as biological ageing processes. This will help tailor the provision of health and social interventions aimed at improving outcomes for burn patients.

The effect of respiratory comorbidities and smoking on major burns with inhalation injuries: A 10 year review of outcomes at a UK Burns Centre.

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Friday afternoon sessions, Kings Suite, May 6, 2022, 11:40 - 15:00

Introduction

Pre-existing respiratory disease and smoking is thought to have an adverse effect on outcomes in patients with major burns and inhalation injuries, largely through the development of severe respiratory complications. However, the evidence base is surprisingly lacking, and the effect on mortality, as well as factors such as length of intubation, intensive care stay and subsequent development of pneumonia have not been well established.

Purpose

To investigate the relationship between pre-existing respiratory comorbidities and smoking on outcomes in burns with an inhalation injury.

Methods

A retrospective review of patient data within our ICU burns database and electronic records for patients admitted to our regional burns centre with cutaneous burns and an inhalation injury between January 2001 and December 2021. Data was collected on demographic details, mechanism of injury, burn size and depth, smoking status, comorbidities, length of intubation, length of stay, development of respiratory infections, and mortality.

Results

7008 patients were included in the study. 83 patients were treated for an inhalation injury and a burn during the period. 44 were documented tobacco smokers, 20 were non-smokers and 18 did not have their smoking status documented. 16(n=13) had at least one significant respiratory comorbidity. The most frequent were asthma(n=6) and COPD(n=5). Of those with a respiratory comorbidity, 85%(n=11) were also smokers. 28% of the total(n=18) had at least one cardiovascular comorbidity and 56%(n=10) of these were smokers. Hypertension(n=11) and ischaemic heart disease(n=3) were the most frequent pathologies. 17% of the total(n=11) had other systemic comorbidities, such as diabetes(n=5) and chronic kidney disease(n=4).

In hospital mortality rate was 36% for the smoking and respiratory disease group(n=16), 56% in the cardiovascular group(n=10) and 25% in the non-smoking group(n=5). All patients in the smoking group required intubation, whilst two patients in the non-smoking group did not. Median length of intubation was nine days in both the smokers and respiratory disease group and cardiovascular group, but only six days in non-smokers. Reintubation rates were 13%(n=4) in the smokers and respiratory disease group but 10%(n=1) in non-smokers. Around a third of those in both groups(n=8,n=3) required tracheostomies. Of those that survived past the initial resuscitation period, 53%(n=18) of the respiratory disease and smoking group required intravenous antibiotics for pneumonia, as did 50%(n=9) of the non-smoking group, in comparison to 80% of the cardiovascular group. Median length of intensive care stay was 18 days in the non-smokers(range 2-36), 12 days in the smokers(range 1-64) and 20 days(range 2-33) in the cardiovascular group. This may reflect the greater influence of other factors such as size of burn, timing of surgery, and need for multiple organ support.

Conclusion

This study provides important initial evidence for the impact of respiratory disease and smoking on outcomes in major burns with an inhalation injury. The establishment of smoking status and respiratory comorbidities is an important part of initial assessment and can help inform management decisions in these patients. Given the difference in mortality rates, early diagnosis and multidisciplinary team input will be necessary to successfully manage these complex patients.

Preoperative oral supplements to decrease peri-operative fasting duration and improve nutritional optimisation - results and proposed protocol.

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Friday afternoon sessions, Kings Suite, May 6, 2022, 11:40 - 15:00

Introduction:

Burn injuries result in a profound hypermetabolic state that can persist for months after the initial insult [1]. Early adequate nutrition is required to alleviate some of this metabolic stress, however enteral feeding is often disrupted by the mandatory pre-operative fasting period and therefore the 'nil-by-mouth' duration should aim to be as short as necessary.

Purpose/Aim:

The primary aim was to establish if the length of the pre-operative fasting duration experienced by patients with a burn injury undergoing operative procedures exceeded national anaesthetic guidelines. The secondary aim was to identify interventions suitable to reduce the impact of this interval on nutritional status.

Methods:

A retrospective review of all patients with a burn injury undergoing a theatre procedure under general anaesthesia between August 2020 and May 2021 was undertaken. Non-clear fluid fasting duration was calculated as time from last oral intake until anaesthetic time start and audited against national recommendations. Secondary outcomes included length of hospital stay (LOS) and time until 100% healing of burn.

Results:

22 patients were identified, undergoing 31 operative procedures with 3 cancelled procedures. Average total body surface area involvement was 5.1%. The average fasting duration for non-clear fluids was 1436 minutes, far exceeding the necessary 360 minutes fasting requirement. Mean LOS was 14 days, with those experiencing longer fasting durations having an increased LOS. Time to 100% healing was also longer in those with lengthier fasting durations. Reasons for prolonged fasting times were delays accessing theatre and no additional nutrition given after the evening meal the night before surgery.

Discussion:

A nutritional intervention protocol was proposed to shorten the duration of pre-operative fasting, with input from specialist burns dietitians, anaesthetic and burns consultants and burns nursing staff. The benefits of nutritional supplements are well established in burn injuries [2,3]; other surgical specialities utilise additional supplementation in the immediate pre-operative window, offering a clear-fluid based nutritional supplement up to 2 hours prior to surgery [4]. An existing nutritional supplement providing additional carbohydrate and protein was identified as being suitable for use pre-operatively, without detrimentally impacting the pre-operative fasting period. This will be offered to patients up to 2 hours prior to anaesthetic induction to reduce the time without nutritional intake.

Conclusion:

The duration patients with burn injuries are fasted for far exceeds the national anaesthetic recommendations for minimum fasting durations. Given the hypermetabolic state caused by a burn injury, this period should be reduced to avoid a detrimental impact on nutritional status and subsequent recovery. We suggest the use of a pre-operative nutritional supplement to tackle this and present our protocol.

References:

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Burn surgery preparation and prophylactic antibiotics: an international perspective

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Friday afternoon sessions, Kings Suite, May 6, 2022, 11:40 - 15:00

Introduction:

A burn wound is by definition sterile however the loss of skin integrity and requirement for debridement and reconstruction puts these wounds at risk of subsequent infection with poor wound healing and graft take. Patients can develop chronic wound infections with multi-drug resistant organisms resulting in delayed healing and difficulty achieving skin coverage.

Purpose of study:

The purpose of this study was to survey the use of topical antiseptic fluids used to prepare the skin before surgery and the use of prophylactic antibiotics during debridement and skin grafting procedures.

Methods:

We conducted an email and telephone survey of burns services across the United Kingdom, Europe, and Australia to investigate which antiseptic solutions and antibiotics were used.

Results:

In total 32 burns services responded to the survey on skin preparations and prophylactic antibiotics. Services comprised 19 burns centres, 12 burns units, and 1 burns facility.

Twelve services used a single preparation method (38%), six services used a double method (19%), thirteen services used a triple method (41%) and one service had no standard regime (3%). There was much interdepartmental variation with 10 different solutions used for skin preparation. Aqueous povidone-iodine was the most commonly used antiseptic (72%) followed by aqueous chlorhexidine and alcoholic chlorhexidine (31% and 28% respectively).

Thirteen services (54%) used intravenous prophylactic antibiotics routinely during initial burn debridement and fourteen units (58%) used intravenous prophylactic antibiotics routinely during subsequent skin grafting procedures. Of the ten services not routinely using prophylactic antibiotics, seven (70%) would use prophylactic antibiotics depending on the microbiological cultures and sensitivities. Seven services (29%) used a single antibiotic and seven services used dual antibiotics. Flucloxacillin was most commonly used as either a single agent (71%) or in conjunction with Gentamicin (86%).

Conclusions:

Significant disparity between services in the solutions used for disinfection of the burn wound and there is scarce evidence to indicate which is superior. Intravenous prophylactic antibiotics are commonly used at initial burn debridement and subsequent skin grafting procedures. More research is needed into the effects of prophylactic antibiotics on the rates of wound infection. Whichever policies are in place, the focus should remain patient optimisation, early burn excision, early skin coverage, and excellent nursing care to reduce the incidence of burn infection.

Self-inflicted burns: 19-year experience of the Birmingham Burns Center

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction

Self-inflicted burns are preventable injuries of public health concern. They require large amount of resource for management like other major burns. These injuries are common in patients with certain background characteristics. There are only a few published articles on self-inflicted burns.

Objective

This large retrospective review highlights the burden of self-immolation injuries, risk factors and common patient characteristics, perceived remote contributory factors and suggestions to mitigate these injuries in the future.

Methods

A 19-year retrospective analysis of self-inflicted burns (2003 – 2021) at a regional Burns Centre was done. Data were obtained from international Burn Injury Database (iBID). The UK government yearly healthcare funding was obtained from available public data (House of Commons Library).

Results/Discussion

A total of 5,571 patients with burns were admitted, out of which 272 (4.8%) were self-inflicted. Their burns were mostly extensive (mean %TBSA; 25.8%) with flame as the commonest aetiological agent (77.6%). A significant proportion of the patients were unemployed. However, mental illness and substance abuse were common among all patients. Number of days in intensive care unit (mean 13.5), overall hospital stays (mean 27.6 days) and theatre sessions were high. When corrected for inflation a decrease in government funding correlated with increased incidence of self-inflicted burns. Likewise, increased government funding has been associated with a gradual decline. Mortality rate was 21.0%.

Self-inflicted burn injuries are common among patients with impulsive behavior. In this cohort, most patients had underlying mental illness and other stressors. A gradual increase in incidence peaked in a period with relatively low annual government funding. This underscores the fact that improved healthcare funding and social support would mitigate these preventable injuries that put a significant strain on available healthcare resources. With high number of days spent in the intensive care unit (ICU), several surgical procedures per patient, overall hospital stay and rehabilitations, the cost of care for self-immolation injuries is enormous. Standard measures are required to relieve the associated burden from these patients themselves, their families, the society and the entire healthcare system.

Conclusion

Self-inflicted burn is preventable and common in people with underlying mental illness. The available data shows a direct relationship with annual government funding when corrected for prevailing inflation rate. Low healthcare/mental health funding will translate to more expenditure when these patients self-harm via self-immolation. Development of best practices for prevention, treatment, rehabilitation and social support for these patients and their families is necessary. The impact of improved government funding cannot be over emphasized. A multicenter review will further highlight the severity of this problem.

After freedom comes pain: Increasing firework injuries at a regional burns centre following the lifting of COVID-19 restrictions

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction

Our regional burns service always has cause to “remember, remember the 5th of November” with both adults and children commonly sustaining firework-related injuries around bonfire night. This year, however, our unit saw a large increase in patients sustaining firework-related injuries compared to previous years, placing a greater burden on our regional service. To assess this, we compared the data for 2021 to the two previous years.

Methods

This retrospective study included all patients attending our unit with a firework-related burn in the 4-week period surrounding bonfire night (5th November) in 2021, comparing both outpatients and admissions to our service to the same period in 2020 and 2019.

Results

Our unit saw a 160% increase in firework-related injuries in 2021 as compared to 2020; whilst that year's figure was likely affected by lockdowns, 2021 still represented a 116.7% increase from pre-COVID numbers in 2019. 2021 saw 26 patients, 20 of which (77%) were referred on 5th or 6th November (see Table 1). In the same period last year we saw a total of 10 patients with firework-related burns, and 12 patients in 2019 before the start of the COVID-19 pandemic and any associated restrictions. The demographic and pattern of firework-related injuries has remained largely similar across the last three years. Young men remained the most commonly injured with hand, face and neck injuries seen most frequently. The majority of burns in 2021 were superficial partial thickness burns (22/26) which were treated with dressings and outpatient physiotherapy in our unit. However, one patient sustained a 24% flame burn which required multiple trips to theatre. Another patient required digit re-vascularisation and ongoing MDT input as an outpatient. Previous years saw a similar trend, with 9/10 (90%) and 10/12 (83%) of patients sustaining superficial partial thickness burns in 2020 and 2019 respectively.

Discussion

5th November 2020 marked the start of the second national coronavirus lockdown in the U.K. Prior to this, from 14th September 2020 the ‘rule of six’ banned all indoor and outdoor gatherings of over six people. For this reason, gatherings for firework night were far more limited and consequently we saw a limited number of firework-related injuries. This year, 2021, the ‘roadmap out of lockdown’ saw an ease of restrictions, and consequently numerous firework displays and gatherings. However, with this freedom comes pain. A 160% increase in patients referred into our service placed a greater burden on our burns service. Although the average burn size (TBSA) was small, the main areas of the body affected were the hands and face – both functionally and aesthetically important areas, and ones that require referral to a specialised burns service. With easing of restrictions, it is important to be more vigilant. Now is the time for visible safety campaigns targeting high-risk groups, particularly young males, about the dangers of fireworks.

References

- [1] Nizamoglu et al. ‘The ten-year experience of firework injuries treated at a UK regional burns and plastic surgery unit’ *Ann Burns Fire Disasters* (2018) 31(1): 13 – 16
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Table 1: Summary of firework-related injuries at our unit from 2021, 2020 and 2019

	21/10/21 – 21/11/21	21/10/20 – 21/11/20	21/10/19 – 21/11/19
Total no. patients	26 patients (18 male)	10 patients (8 male)	12 patients (9 male)
Average % TBSA	1.41%	0.85%	0.39%
Average age (years)	17 years	21 years	17 years
Hand burns	10 patients (38%)	8 patients (80%)	3 patients (25%)
Face/neck burns	7 patients (26%)	2 patients (20%)	6 patients (50%)
Both hands and face	4 patients (15%)	0	1 patient
Depth of burn	SPT 22 FT 2 MIX 2	SPT 9 DD 1	SPT 10 DD 2

TBSA = total body surface area (of burn), SPT = superficial partial thickness, DD = deep dermal, FT = full thickness

Giant Hogweed: The role of burns professionals in public health awareness and strategies to prevent burns

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction:

Giant Hogweed grows throughout the UK and can be present along footpaths and in domestic gardens, making interaction with this plant inevitable. Most documented cutaneous burns from Giant Hogweed exposure are partial thickness and amenable to conservative management. Full thickness burns are rare and have been reported infrequently in the literature. Good awareness is key to preventing severe burns from these plants.

Purpose of study:

Following our experience with a rare case of full thickness burns from Giant Hogweed exposure we set out to:

1. Ascertain awareness about the plant amongst burn professionals.
2. Determine what measures were already in place to raise public awareness.
3. Outline additional measures to increase public awareness.

Methods:

1. We present our recent experience with a case of full thickness burns from Giant Hogweed exposure.
2. We conducted a survey amongst burn professionals by showing them a photograph of Giant Hogweed and asking them to identify the plant and its significance.
3. We conducted a web search on available online published information factsheets and media reports on Giant Hogweed.
4. We considered additional recommendations for raising public health awareness.

Discussion:

We treated a 30 year old woman who presented with 1.5% TBSA deep burn to her left thigh following contact with Giant Hogweed, which subsequently required excision and grafting. Our experience with this case alerted us to the ongoing risks from this endemic plant.

Our survey of 45 burns professionals (plastic surgery consultants, registrars, Senior House Officers and burns nurses) showed that only 15 (33%) were able to identify the plant or its significance. Our web search found a number of published factsheets on Giant Hogweed detailing the dangers and relevant first aid instructions, as well as media reports.

We propose the following prevention measures:

1. Engaging with the local council and informing them of our experience and prompting them to clear the weed along footpaths in spring and summer, and provide additional signage in parks and car parks where the weed grows. Signage should include a photograph of the plant and first aid instructions.
2. Engaging with the media to publish our case as a further serious incident from the weed to raise awareness.
3. Developing an information leaflet with details about the weed and first aid instructions for local dissemination.

Conclusions:

Our case emphasises the on-going public health risk from Giant Hogweed. The results of our survey demonstrated low awareness amongst burns professionals who would be at the forefront of treating burns following exposure to this plant. It is likely that general public awareness would be even poorer. This study has allowed us to generate correspondence with the local councils of relevant geographic areas emphasising the ongoing risks and suggestions for increased public awareness. The plastic surgery training and exam syllabus may benefit from a minor update.

The Peroneus Brevis muscle flap for distal third tibia reconstruction in burns and trauma – a non-microsurgical and expeditious technique offering rapid wound healing of a complex wound

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction: Reconstructive options for defects of the distal third of the tibia are often limited and challenging and are often cited as requiring free tissue transfer. Full thickness burns to the anterior tibia quite often result in exposure of the tibia. Not all burn patients are suitable for microsurgical reconstruction for a range of reasons and therefore local options need to be explored. Peroneus Brevis is a thin fusiform muscle in the lateral compartment of the leg which contributes to plantarflexion and eversion of the foot. This muscle can be used to reconstruct distal third tibia defects without significant functional loss and is especially useful in long and narrow defects.

Purpose of study: We demonstrate in detail the technique and use of this flap and the outcome in a challenging case.

Methods: We present a case of a patient with a 75% total body surface area burns with a large distal tibial defect which was reconstructed with a Peroneus Brevis muscle flap with simultaneous skin graft. We outline the considerations to successfully perform this flap and the step-by-step methodology.

Results: In our hands this reconstructive option allowed successful reconstruction of a complex distal tibia defect which healed within 3 weeks with good functional and aesthetic results.

Conclusions: The Peroneus Brevis flap offers a relatively straightforward reconstructive option that can allow rapid healing of exposed bone in the distal third of the tibia without microsurgery. It has low complexity, relatively short operating time and has minimal donor site morbidity. All these features make it particularly suitable for patients with extensive burns who have contra-indications to free flap reconstruction. This technique would also be suitable in low resource settings where microsurgical facilities are lacking.

Burn fluid resuscitation using Plasmalyte®: Is it a safe replacement for Ringers Lactate and what is the potential cost saving?

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction

Ringer's lactate has been the most widely used crystalloid fluid for burn resuscitation for decades. Plasmalyte®, a newer crystalloid, is gaining popularity for use in the critically ill, including patients with burns. Ringers lactate is already being phased out in many hospitals in favour of Plasmalyte®, partly attributable to its relatively lower cost. Patients with major burns receive large volumes of fluid, especially during the resuscitation period. The type of crystalloid solution used is likely to have an impact on the metabolic status of patients and their overall outcomes. The choice of fluid for burn resuscitation has been one of the most researched topics in burn care and various types of fluids have been superseded based on research findings.

Purpose of study: Due to concerns about ensuing changes in fluid resuscitation practise, our aim was to examine the evidence supporting the use of Plasmalyte® for fluid resuscitation in burns.

Methods

We comprehensively searched Medline, Embase, Google scholar and the Cochrane library for articles comparing Ringers Lactate to Plasmalyte® for burn resuscitation. Combinations of keywords and thesaurus headings were used to search for relevant titles and abstracts. Animal studies, paediatric studies and studies that were not in English were excluded.

Results

Only one randomised controlled study was identified that focused on direct comparison between Plasmalyte® and Ringers Lactate for burn resuscitation. The study reported no significant differences in acid-base status between the two fluids and alkalinising effects of Plasmalyte® were less significant than expected. This study was however limited by the small number of patients and did not report patient outcomes.

Our search therefore did not allow us to perform a structured review in the form of a systematic review or metanalysis. This led to a comprehensive narrative review on the topic which demonstrated that:

1. Plasmalyte® is more physiologically similar to blood plasma and has metabolic properties that make it theoretically suitable for large volume resuscitation in critically ill patients.
2. Most studies done comparing lactate- versus and acetate-based solutions were performed in elective surgical settings and there is limited data on high-risk critically ill patients, including severe burns.
3. Plasmalyte® costs less than most of the other intravenous fluids in current practice and its wholesale use is projected to bring significant cost saving.
4. There is a paucity of level-one evidence to suggest that use of Plasmalyte® for burn resuscitation is safe or is recommended practice.

Conclusions

Based on the limited literature on the use of Plasmalyte® in burns, it is difficult to draw firm conclusions. However, the evidence that currently exists does not suggest that Plasmalyte® is unsafe for burn resuscitation. Furthermore there are potential cost savings of the order of 42%. Further research in the form of multicentre randomised controlled trials looking at the suitability of Plasmalyte® for use in burns are needed to establish the safety profile more conclusively and compare outcomes with more established

fluid resuscitation. Until then we advise against formulary changes that remove access to Ringers Lactate for burn resuscitation.

Cost of intravenous fluids	
IV fluids	Cost (£)
0.9% saline 500 ml	£1.66
Ringers Lactate /Hartmann's 500 ml	£2.53
Plasmalyte® 500ml	£1.46
Gelofusine 4% 500ml	£4.97
Human albumin solution 4.5% 500 ml (MW 68,000 Da)	£55.02

Table 1: Prices according to UK Baxter Healthcare Limited Hospital List Price (£ ex VAT) 2019 and British National Formulary (National Institute for Health and Care Excellence).

Audit of burn therapists use of the LSEBN knowledge competency framework

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction:

The LSEBN Knowledge Competency Framework was developed to aid therapists to identify learning needs and structure development and competence to practice in all areas of burn care. The framework was formally endorsed by the London and South East Burn Network, published in February 2020 and shared with the four burn services within the LSEBN.

Purpose:

The aim of the audit was to establish how the framework is being used and how useful the therapists find it in the four burn services at centre and unit level within the LSEBN.

Method:

A simple questionnaire was developed and endorsed by the LSEBN Therapy Group. The questionnaire was sent to the lead therapists in each service for dissemination among their teams, to be completed by therapists (occupational therapists, physiotherapists and assistants) working in burns for all or part of their job role, with varying degrees of experience. The audit period was May to July 2021. The Network Lead therapist collected and analysed the results.

Results/Discussion:

Sixteen responses were collected from three of the four services. The feedback from the therapists using the LSEBN Knowledge Competency Framework is generally very positive across different roles and levels of experience, as well as for therapists working in different levels of burn care (centre and unit). The majority of physiotherapists responded that they had their competency related to advanced respiratory care signed off prior to working on call. The poster will demonstrate variations and similarities in response between different banding levels of staff, different professions (occupational therapy vs physiotherapy) and different levels of burn care. It will explore the use of the framework within supervision and appraisal.

Conclusion:

The framework has been reported as useful by therapists at different services and across different levels of experience within the LSEBN. Some minor changes have been made to the framework following comments received from the audit and it has been shared with the national burn therapy interest group. It is planned to re-audit nationally with inclusion of questions related to when the framework is not used or useful.

First aid in hospital prime area

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction

Within NHS hospital trust, across each of its 3 sites has a canteen that is accessible to staff and the general public. The main source of a scold injury for a child is from hot liquids making the canteen areas a prime area for this to happen.

Effective first aid and initial management of the burn wound can limit tissue damage and can make a difference to the long term outcome for the child.

First aid can help to reduce the size and ultimate depth of the burn injury. It can be effective for up to 3 hours after the burn injury.

We devised a first aid quiz to give out to all members in each of the canteens to establish their understanding and knowledge. This would then determine whether any first aid training would be needed.

Method

In conjunction with the British Burns Association, a Burns Awareness day is held each October. Within this Burns Awareness day, we handed out a quiz that focused on the use of first aid to all 3 trust canteen sites in order to identify what their first aid knowledge was. The quiz data was collected to identify whether any first aid training was needed.

Results

The results from the 30 staff members that the quiz was given to, there were approximately 66% returned. From this it was found that effective first aid knowledge was lacking and further training was required.

Discussion

We set up a training package to deliver to the staff members, remotely due to covid restrictions, so that all staff could access it. This training package primarily focused on Burns First Aid Training. Posters were also sent to the canteen areas for them to display, reminding staff on what to do.

Conclusion

To ensure the first aid training was effective evaluation forms will be given out for staff to complete. We will also repeat this training package again in one year to see how effective it has been.

Re-assessing firework regulations to manage Burns Service demand

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

We wish to raise awareness for the need to review firework regulations across the UK following the increased demand experienced by Burns Services not just during the bonfire weekend but for the duration of firework sales, incorporating the celebration of religious festivals as well as New Years Day.

When The Fireworks Act 2003 [1] and The Fireworks Regulations 2004 [2] was introduced, a regional Burns Centre reported 83% of children's firework injuries occurred in the 3 weeks surrounding Bonfire Night in 2004 [3].

Current government law [4] allows the purchasing of fireworks from registered sellers for private use on the following dates:

- 15th October to 10th November
- 26th to 31st December
- 3 days before Diwali and Chinese New Year

The restriction of firework sales by making the purchasing time frames shorter would enable a reduction in burns injuries and alleviate the demand on Burns Services. These departments across the country already have to navigate the increased pressures related to COVID-19 as well as managing other presentations concurrently. A further review of firework legislation would be beneficial to continue to run Burns services safely.

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Experience of regional burns facility before and after the COVID-19 pandemic: a retrospective cohort analysis

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction

COVID-19 has resulted in many burns units reporting decreased presentations of burns [1-2]. James Cook University Hospital is unique within the region as a burns facility in geographical proximity to a burns centre in Newcastle Royal Victoria Infirmary. Burns workload has remained steady since the COVID-19 pandemic and investigation was required to determine if the experience of the facility had been affected by the pandemic.

Purpose of Study

The aim of this study was to collate and present the entire caseload of burns managed at James Cook University Hospital burns facility from March 2019 to November 2021. In addition, we investigated if there were differences in number, type, and severity of burns presenting in the year before and after the start of the COVID-19 pandemic.

Methods

A retrospective search was performed on a locally maintained burns database to collect data on all patients presenting with burns. For each patient, data was collected on: age at time of burn, date of burn, type of burn, total burn surface area (TBSA), and whether operative management was required. The year preceding the start of the COVID-19 pandemic (March 2019-February 2020) was compared with the year following (March 2020-February 2021). Statistics were performed using IBM SPSS.

Results

799 burns presented to the burns facility during the 32-month data collection period. The average age of the patients was 28.3 years (range 1 month-100 years). The most common mechanisms of these burn injuries were: scalds (38%), contact (27%), chemical (9%), and flame (9%). Average TBSA was 1.77% (largest TBSA was 54%). 68% of burns were less than or equal to 1%. 4 (0.5%) patients had burns greater than or equal to 15%. Regarding depth: 14% were epidermal, 51% were superficial dermal, 25% were mixed or deep dermal, and 11% were full thickness burns. The majority of patients were treated conservatively but 41 (5%) patients required operative management and 8 (1%) patients required transfer to the burns centre at Newcastle Royal Victoria Infirmary.

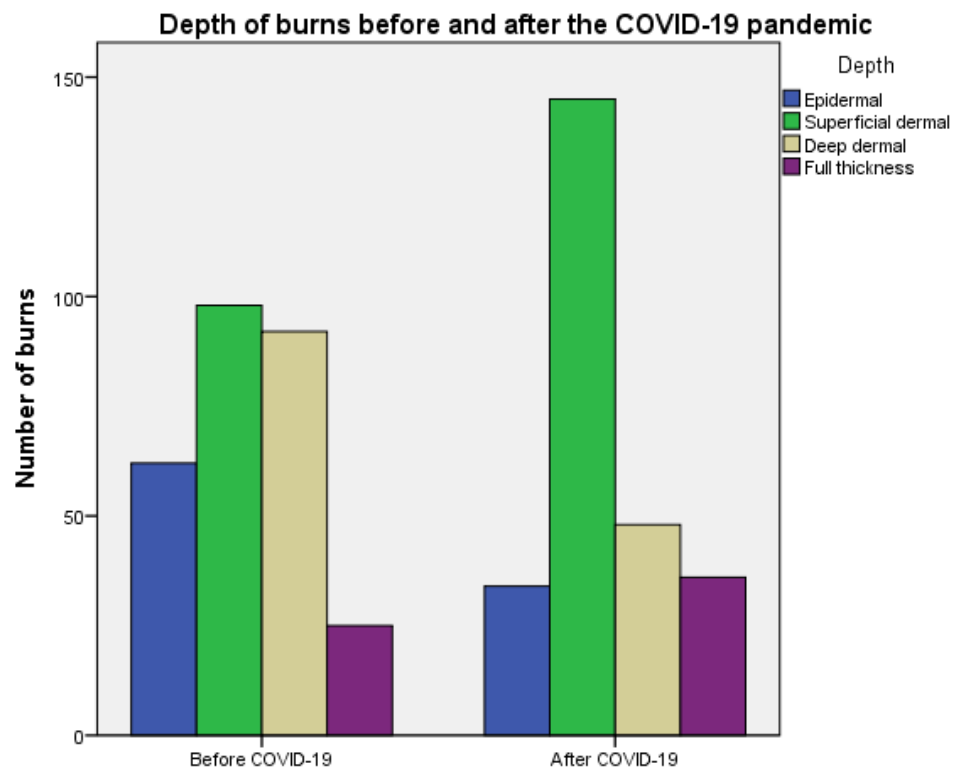
285 burns presented the year before the COVID-19 pandemic and 301 presented the year after the pandemic. Following COVID-19, the age at presentation of burns was slightly lower (27.5 vs 31.7 years; $p=0.04$), there was significant difference in the depth of burns [shown in graph] ($p<0.01$), and more patients presented with scald burns ($p=0.02$). Otherwise, there was no statistically significant difference in the mean TBSA ($p=0.48$), the other mechanisms of burns ($p=0.74$), or proportion of patients requiring surgery ($p=0.70$) before and after COVID-19.

Conclusion

This study summarises the entire caseload of burns seen at a regional burns facility in the North East of England and demonstrates that there were changes in presentation of burns in relation to depth of injury and age at presentation. However, there were no other significant differences in outcome measures, including TBSA or number of patients requiring operative management.

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A patient's perspective of extravasation injury treated at a burns centre

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction:

Extravasation injury is the damage caused by inadvertent infiltration of intravenous medication into the surrounding tissue. Some of these injuries can have severe ramifications including the need for reconstructive surgery, and can significantly impact the mental health of already vulnerable patients. Various extravasation injury protocols exist in hospitals and regional networks but none appear to have any patient involvement in their development, especially in high risk areas such as those delivering intravenous chemotherapy and intensive care units.

Purpose of study: By interviewing a patient after such an injury, we sought to understand better the patient experience and journey in the aftermath of such an injury and how care pathways for these patients might be improved. We were also keen to capture the psychological impact of extravasation injuries on patients undergoing cancer or ICU care, for the education of staff and for purposes of potentially updating extravasation injury treatment protocols and guidelines.

Method: With the consent of the patient and help from the medical photography department we conducted a recorded video interview with a patient who was treated at our burns centre following an extravasation injury. The patient shared her experience of the treatment she received from the time of injury to healing and shared her thoughts on what would have improved her experience. The video footage was edited into an 8-minute production.

Discussion: The video footage displays an unfortunate case of a 72 year-old lady diagnosed with breast cancer, who sustained an extravasation injury with chemotherapy agents through a right-hand peripheral line. The resulting injury to her right wrist had both a physical and psychological impact on her, but also led to immediate cessation of her cancer treatment. The patient was managed conservatively with dressings only for 4 months. During the patient's course of wound management, her remaining chemotherapy sessions could not be completed. The patient received psychological support from the psychologist at the burns centre but no psychological support or counselling around the time of injury nor written information about her condition.

Although patients are often informed of the possibility of extravasation injuries prior to the start of treatment, they are not well informed of the consequences of these injuries and the implications on the rest of their treatment. Furthermore, extravasation injury guidelines do not address the psychological aspects of these injuries.

Conclusion:

Having the patient share her experience was both therapeutic for the patient as well as informative for the burns team. Apart from medical management, these patients also expect good communication from health workers and need maximum psychological support for their already fragile mental health. This experience has set the scene for a more patient-centric approach to extravasation injury, guidelines and protocols which we hope to update – including elements of psychological intervention which are completely absent in all local and regional protocols.

***WINNER - BEST POSTER (Prevention)** Delivering A First Aid Safety Message to a TikTok Challenge in the UK**

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction – identification for the need of a prevention strategy, following feedback within the team of increased number of honeycomb related injuries shared across the London and South East Burns Network, related to Squid Games honeycomb challenge.

Purpose of the study - was to see if delivering a burns first aid message using the platform TikTok at source of challenge would reduce the number of injuries occurrence across the network.

Methods – a TikTok film was produced with a participant completing the challenge leading to a burn injury, containing a clear visual delivery of burns first aid following injury. This was uploaded using a directed thumbnail, containing #squidgamehoneycomb #squidgame #burnsfirstaid so that when viewers searched for the challenge the burns first aid advice would appear. The final part to the film was a clear burns first aid written recap of the message to ensure viewers had clear understanding of the burns first aid advice.

Results / discussion – following upload of the film it received view ratings of 1317 views over 72 hours and no further injuries were seen over the coming weeks.

Conclusion – introduction of a burns first aid educational film into TikTok where the honeycomb challenge was generating large numbers of views was effective. The use of effective hashtags on thumbnail enabled the film to be viewed by target audience. Reduction in numbers of cases were seen, however this was paired with additional media interest and articles in national newspapers were the educational film on TikTok was highlighted. Use of this platform at source of challenge was well viewed and was easy to use for this purpose.

***RUNNER UP - BEST POSTER (Prevention)** Honeycomb burns: the good and the bad of social media**

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction

Social media is a major influencer of behaviours in the paediatric population and can sometimes lead to serious injuries because of attempts to imitate online trends. A highly popular Korean drama had generated several trends, of which one included the carving of various shapes out of a traditional honeycomb candy: Dalgona. The preparation of honeycomb however can be dangerous in inexperienced hands due to the potentially unexpected bubbling of the solution when sodium bicarbonate is added and the high temperature of the sugar solution which can lead to deep burn injuries.

Purpose of study

Here we present a series of three cases where children have sustained severe burn injuries as a result of accidents while preparing Dalgona. We also describe how our centre then utilised social media and multiple media outlets to counter the trend and spread awareness of burn prevention and first aid.

Methods

Between September to October 2021, three children with ages ranging from 10 to 14 years old suffered burn injuries whilst preparing the hot honeycomb sugar solution. Two suffered burns to the hands and one to the dorsum of her foot. Although all injuries were less than 1% TBSA, the depth of the burns were mid to deep dermal. All were treated with conservative management with silver dressings (Acticoat, Smith-Nephew, USA) and required an average of 3-4 weeks for 95% healing. Both hand cases required extensive hand occupational therapy input and the patient with the foot burn has developed hypertrophic scarring which will require further scar management. Due to the number of cases with similar causation in a short period of time and the potential for more, we felt it was important to get a burn prevention message out to the public. We collaborated with the British Burn Association and supplied them with the details of the problem along with a photograph of one of our patients, whose family had given full consent for publication. In fact, other burn services in the UK had been noticing similar injuries and the BBA highlighted this on their Twitter feed. The burns service also gave interviews which were distributed on written media, radio and television to raise awareness. Since then, no further cases of similar injuries have presented to the service.

Results and discussion

Our experience has shown that social media trends can lead to unintended injuries, especially in children to try to mimic the trends without understanding the dangers. On the other hand, social media can also be used to spread awareness of burn prevention to a wide audience quickly and effectively and should be considered as a valuable education tool.

Conclusion

Parents and health care providers need to recognise the potential dangers of social media trends and intervene early to prevent serious injuries.

An 11-year review of sunburn injuries presented to the paediatric specialist burn services

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Background: The incidence of sunburn injuries continues to rise despite increased awareness of the risks of sun exposure and availability of sun protection. Whilst not perceived as a significant burden on burns care services, patients nevertheless suffer due to associated increased risk for future development of skin malignancies. The aims of this study were to determine the burden and severity of sunburn injuries presenting to the Manchester children's burns service, to identify any temporal variations.

Methods: An eleven-year retrospective review was performed of paediatric patients with sunburn injuries, presenting to the Royal Manchester Children's Hospital (RMCH) between 2010 and 2020 (inclusive). Data was collected from the International Burn Injury Database (iBID), electronic patient record (EPR) and local data collection systems. Data extracted included patient demographics, sunburn characteristics and management of the burn injury including need for admission and documented surgical interventions. Linear regression analysis was performed to determine any significance of temporal trends.

Results: 142 paediatric patients with sunburn injuries were managed by the burns service at RMCH over the 11-year period. The majority of patients (69%, 98/142) were aged between 5 and 15 years of age. More than half of the patients had burn injuries greater than 1% TBSA (69%, 96/142, range 0.1-9%). 37% (53/142) of patients were admitted to hospital, with the majority of patients admitted for only a single day (Mode = 1, Median = 1, Range = 1-10). Most patients were treated in the outpatient setting (63%, 89/142) or as a 'ward attender' with <24 hours hospital admission (27%, 38/142). 87% (123/142) of injuries occurred during the northern hemisphere summer months between May and August, with 51% occurring in the UK. Overseas sunburn injuries most commonly occurred in Spain and Turkey (25% & 6% respectively). By year, the total number of paediatric sunburn injuries ranged from 1 (2010) to 25 (2017). Case numbers prior to 2014 were noticeably lower, with concerns over data reporting/reliability, whilst data from 2020 was likely impacted by the COVID-19 pandemic on international and domestic travel. These were therefore removed from regression analysis. Data between 2014-2019 suggested a moderate increasing trend of injuries over time ($r^2 = 0.6$, $p < 0.01$).

Conclusion: This eleven-year retrospective cohort study indicates an increasing incidence of sunburn injury in paediatric patients, despite limitations in data reliability before 2014. This highlights that despite increased awareness, young patients continue to suffer sunburn injuries, severe enough to warrant referral. As most sunburn injuries are unlikely to present to specialist burn services, this data reflects only a fraction of paediatric sunburn injuries. There is an obvious need therefore for enhanced public awareness campaigns regarding sun protection. This educational and preventative role of burns care services is a key holistic component tackling both consequences of burn injuries themselves and associated risks of burn injury such as skin cancer development.

Our experience in the use of skin allograft in the National Burns Unit for Ireland

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction: The use of skin grafts from cadaveric donors aka allograft has long been used in the management of complex and major burn patients. It can act as a biological dressing and a temporising measure when there are limitations on donor sites for grafting, and is also helpful in developing a suitable wound bed for definitive grafting. Recently there has been some controversy in the literature about its utility in burns of 20-50% TBSA, with some suggesting there is increased mortality in patients who receive it(1) and raising concerns about the costs and resources involved.

Methods: We reviewed our logbook of allograft usage from its start point in June 2014 up until January 2021. We used the information from this logbook to review clinical records of patients who received allograft for the treatment of their burn injuries. We recorded data including patient age, TBSA% burned, number of surgeries required, time to discharge, and mortality at 1 year.

Results: During this time allograft was used on 35 patients in the National Burns Unit. 31 of these received allograft for burn injuries, 3 for Toxic Epidermal Necrolysis Syndrome, and 1 had allografting as a reconstructive adjunct after major degloving trauma. Mean age at first use of allograft was 52 (median age 55, range 15-86 years), while mean length of inpatient admission was 91.5 days (median 61). Percentage TBSA burned in these patients ranged from 5-99% (mean 40.7%, median 42%), and at 1 year 7/35 patients (20%) had died. Allograft was used both as a source of graft in isolation and in combination with meshed autograft in a "sandwich graft" pattern during this time.

Conclusion/Discussion: Despite recent controversy our experience with the usage of allograft in St James's Hospital has been broadly positive. Given the difficulty in establishing a tissue bank in a country with a relatively small population, our experience also shows the continuing value of international collaboration and the benefits this has brought to our patients. In conclusion, allograft has been a positive addition to the resources of the National Burns Unit and we would be keen to discuss and compare our experience with other units internationally.

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A burning concern of tap water scalds in the United Kingdom

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction

Hot water scalds are a common mechanism for sustaining thermal injury. Tap water scalds from domestic water outlets can afflict a large body surface area and produce severe and disabling injuries. Brief exposure to tap water of 60-degrees Celsius for 5 seconds is sufficient to produce full-thickness burns. Tap water scalds are a preventable injury which carries a significant associated morbidity, mortality and economic burden. Previously identified risk factors include age (<5 or >65 years old) and presence of physical or mental disabilities. Education campaigns and advances in legislation mandating restriction of tap water temperature at user outlets have been employed in attempt to prevent such injuries. Nonetheless, the incidence of these injuries persists, and further work must be done to minimise their occurrence.

Purpose of study

To examine incidence of tap water scalds at a regional burn's unit, evaluating what proportion of hot water scalds are from domestic tap water. Additionally, to determine the age groups at greatest risk of such injuries and investigate the incidence of physical or mental disabilities, and other associated risk factors in patients presenting with tap water scalds.

Methods

A retrospective observational study was carried out to include all patients admitted with tap water scalds to a regional burn's unit from October 2016 to September 2020, inclusive of all ages. Data for the patients admitted to our unit were collected from the International burn injury database (IBID).

Results/discussion

Twenty-three tap water scalds were admitted during the time period studied. Their incidence was 5.75 cases per year and equated to 2.1% of all scalds. The very young (<5 years-old) and elderly (>65 years-old) accounted for the majority of admissions and the mean age at presentation was 48.8 ± 31.6 years. 26.1% of cases had some form of mental disability, and 30.4% had a physical disability. There was one mortality, with a 43% body surface area scald.

Conclusion

Tap water scalds persist as a cause of scald aetiology and result in substantial injury involving large body surface areas, requiring hospital admission and potential surgical intervention. The very young, elderly and those with underlying mental and physical disabilities remain at particular risk. Further changes in legislation mandating restriction of water outlet temperature via temperature control devices may offer a way to prevent such injuries.

High serum Iodine levels in a patient with severe burn injury

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction

We would like to present a case of high serum Iodine levels in a patient with severe burns.

Report

The patient in discussion is a 65-year-old female who sustained 72% TBSA flame burn as a result of self-immolation. Past medical history included recently diagnosed hypertension, bipolar affective disorder and previous self-harm. The patient was admitted to our Burns ITU within 12 hours from injury and primary excision of wounds was done on day 2. The patient remained in the ITU for 8 months due poor wound healing and complications. She developed multiple episodes of sepsis and organ dysfunction and graft failure. Of particular interest she developed multiple episodes of accelerated hypertension and arrhythmias, for which the root cause was investigated. The differential diagnoses included intracranial space occupying lesion, pheochromocytoma, hyperthyroidism, post-ictal state, acute anxiety, connective tissue disorder and drug interaction.

Investigations ruled out all potential causes for hypertension. Serum Iodine levels done as part of thyroid function tests revealed high levels – 2.27µmol/L (normal range - 0.32 - 0.64 µmol/L). Further weekly assessments of Iodine revealed alarmingly high levels of iodine. (graph)

Literature review into 'Iodine' and 'burns' revealed sparse reports and evidence.(1)(2) A decision was made to look into the prevalence and impact of Iodine on our patients. A pilot study to monitor serum levels of Iodine in all our major adult patients admitted to our Burns ITU was started from December 2021. All encounters with medications with high content of Iodine, including but not limited to, dressings with PVP-I (Polyvinyl Pyrrolidone Iodine), amiodarone, and radiocontrast will be plotted against serial serum values of iodine. Renal function and days needing renal replacement therapy would also be noted against the values(3).

Discussion

Early debridement, auto-grafting and repeated dressing changes to prevent infection remain the mainstay of surgical management of burn wounds. The most commonly used antimicrobial agent in our unit is PVP-I. PVP-I in various strengths is used as a scrubbing agent in theatres to clean the wounds and in dressings. Other medications that can account for raised iodine levels include Amiodarone and Iodine based contrast for imaging. Although use of PVP-I plays an important role in our wound management, consideration must be taken into its potential harmful side effects particularly after prolonged repeated use.

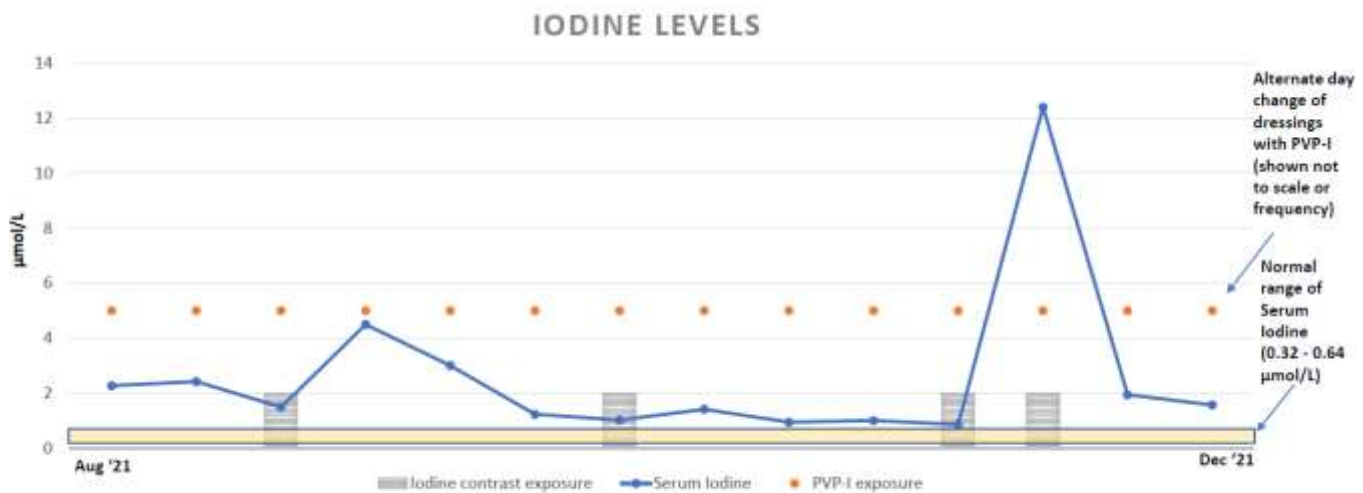
This case report reveals various therapeutic interventions producing negative impact on normal physiology of our patients. Spikes in serum levels correspond to the use of iodinated medications the highest being after two consecutive exposures to radio contrast. Poor wound healing and open wounds requiring more dressing changes than usual could have had a compounding effect on our patient.

CRRT is an effective method to remove excess iodine from plasma(3). Iodine and the Povidone component of PVP-I is also known to worsen renal function(4).

The impact of iodine on organ function in our patient is unknown and iodine dressings were stopped after toxic levels were found. We hope to provide a more recent report on how high Iodine affects our patients through our ongoing study.

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Mulled alcohol: an under-reported cause of burns during the festive period

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction and Aim

The definition of mulling is to warm an alcoholic drink and add sugar and spices. The recommended serving temperature is 60°C. Mulled beverages are typically served during the festive period in hospitality venues, Christmas markets and private dwellings.

The aim of this report is to present two cases of burns sustained from mulled alcohol.

Method

Patient records and digital photography were accessed. A PubMed search of peer-reviewed publications was performed using the terms [burns*] AND [mulled wine] OR [mulled cider] OR [cooked wine] OR [Gluhwein] OR [boiled wine].

Results

Two patients attended our emergency department during December 2021 having sustained burns from mulled alcohol. The first patient was a 23 year old, right hand dominant male who sustained a burn at a Christmas market. He was carrying three cups of mulled wine when one spilt and he sustained a 0.25% TBSA partial thickness burn to the dorsal aspect of his right hand and first web space. At the time of the burn he was wearing wool gloves and no first aid was performed. He presented 2 days post injury with a large blister and complaining of pain. The blister was de-roofed and dressed and he was referred to his local burns service for dressing clinic follow-up.

The second patient was a 26 year old male who sustained 1.5% TBSA partial thickness burns to his penis and bilateral medial thighs after accidentally spilling mulled cider onto himself at a house party. He was wearing jeans at the time of injury and performed 20 minutes of cool water first aid. The blisters were de-roofed and dressed with Jelonet®. A catheter was inserted as the patient hadn't passed urine for over 6 hours. This case was transferred to the regional burns unit for continued management.

Conclusion

To the authors knowledge this is the first time this mechanism of burn has been reported in the literature. Mulled alcohol is heated and contains added sugar which can cause significant burns. We are unaware of any temperature regulations employed to safeguard the public in outlets where these beverages are sold. Consequently, in an effort to prevent future incidents, we feel there is a need for increased vendor and public awareness of burns sustained from mulled alcohol.

Chemical burns from cosmetic products: a paediatric case series

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction and Aim

Cosmetic products can contain hazardous chemicals which can result in burn injuries if used incorrectly or if obtained accidentally by young children.

We aim to share three cases where cosmetic agents have caused chemical burns in children aged 15 years old and younger.

Method

Patient records and digital photography were accessed. A PubMed search of peer-reviewed publications was performed using the terms [burn*] AND [Ethyl Acrylate], [burn*] AND [Hydrogen Peroxide] AND [periocular] OR [periorbital] OR [eyebrow] and [burn*] AND [Paraphenylenediamine] OR [PPD].

Results

Three children presented to our burns service having sustained burns from cosmetic products.

The first patient was a 2 year old girl who had ingested nail varnish primer containing ethyl- acrylate in the family home. The patient was immediately intubated and transferred to paediatric intensive care. She underwent oesophago-gastro-duodenoscopy which showed superficial slough in the oropharynx, to the tongue and to the lips. She was referred with 2% TBSA mixed depth burns to the chin, neck and chest which was sustained when she expectorated the substance. No pH testing was performed as it was >36 hours after injury. Burns were treated conservatively with yellow soft paraffin. She was extubated 24 hours after admission and was discharged on day three. Burns dressing clinic follow up was provided.

The second patient was a 12 year old girl who sustained partial thickness burns to bilateral eyebrows following 3% hydrogen peroxide application at a beauty salon. No patch test was performed as previous treatments had been well tolerated by the patient. There was associated eyelid swelling but no ocular injury. Burn pH was 7.0 and the burn was treated conservatively with yellow soft paraffin. The burns healed within one week and the incident was reported to the salon.

The third case involved a 15 year old girl who had black Henna tattoos to the dorsum of bilateral hands. She presented four days post tattooing with swollen, erythematous hands and discharging blisters. She had taken antihistamines with no relief. She was treated jointly with our dermatology colleagues for Paraphenylenediamine (PPD) allergy and partial thickness burns. Blisters were de-roofed and the burns dressed. Dermatology prescribed emollients and a five day course of prednisolone and antibiotics. All wounds were healed within 8 days and she was referred to our occupational therapists for scar management.

Conclusion

To the authors' knowledge this is the first documentation in the literature of ethyl acrylate causing cutaneous burns in a child and hydrogen peroxide burns following eyebrow dying. PPD is a recognised cause of contact dermatitis but little is reported of it causing chemical burns and scarring.

Professional grade cosmetic products are readily available for purchase by the general public and could therefore be construed as being relatively innocuous. Parents need be informed about the dangers of these products to prevent accidental ingestion or spillage. Authors also feel there should be a minimum age requirement and regulation of mandatory patch testing for the use hydrogen peroxide and PPD containing products in the commercial setting.

Priority areas for International Burn Prevention:

Oil Tanker Explosions as a Major cause of Burn Mortality

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Introduction

Oil tanker explosions are a fairly common cause of disaster in sub Saharan Africa. They often occur in highly populated areas and result in significant loss of life and morbidity.

Methods

A review of internet based websites was performed of African based news websites to determine the number of total disasters in the Subsaharan area .

Results

Twelve oil tanker disasters were identified with the past 10 years with a loss of life of over 1000 souls. These largely occurred in populated areas, and were compounded by high risk behavior at the time of the incident to collect fuel in small containers. This behavior stems in part from efforts to reduce the spillage, and potentially mitigate the risk of subsequent explosion, coupled with efforts to salvage fuel which is a valuable commodity within low / middle income environments. These explosions often result in significant loss of life at the scene, coupled with high numbers of individuals with large surface area burns presenting early, and a longer tail of smaller burn injuries presenting later following the disaster. These are a significant burden of care on healthcare systems , already under-resourced to meet the existing burn care needs.

Discussion

We believe that the risks of oil tanker leakage explosions are great, are common in low middle income settings where maintenance of trucks is less regulated , and safety regulations less enacted, and populations less risk averse. The results of explosion and subsequent burn injury are catastrophic and have a devastating impact on individuals, extended families neighbor-hoods and health systems. Not only are these explosions associated with a very high death rate, but are also cause of significant disability and loss of function

Conclusion

We recommend that there is greater awareness of oil truck explosions as a cause for significant loss of life and disability, and recommend the implementation of national and regional databases to better collect data, and inform better advocacy. We also strongly recommend that prevention programmes highlight awareness of oil tanker explosions as a major cause of burn injury.

***RUNNER UP - BEST POSTER (Care)** Avoidance of iatrogenic burn injury associated with high-alcohol chlorhexidine solutions in patients with staphylococcal scalded skin syndrome (SSSS)**

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Introduction: Staphylococcal Scalded Skin Syndrome (SSSS), is a painful, blistering skin condition which usually requires hospitalisation and is often managed in facilities other than burns units, unless the affected total body surface area becomes too large. The management is mainly support with fluids, antibiotics and dressings. The condition is caused by the toxin released from the *Staphylococcus Aureus* bacterium, causing blistering and peeling of the skin. There is often difficulty in maintaining access in these patients resulting in them having a more permanent line inserted.

Purpose: To educate all medical practitioners that using a high alcohol (70%) chlorhexidine solution such as Chloraprep® on the raw skin in a patient with SSSS may cause a burn to the tissue affected by SSSS. SSSS causes intraepidermal cleavage at the stratum granulosum, causing the surface to be exposed and is easily damaged. Although rare, this is an important consideration, as the burn can be avoided if after the procedure the Chloraprep® is cleaned from the skin, especially before any dressing is applied. The high (70%) alcohol in the Chloraprep® causes a burn when there is no intact epidermis present.

Methods: We present the case of a 4 year old male, diagnosed with SSSS who, following a line insertion developed a burn due the Chloraprep® not being cleaned from the skin following the preparation for the procedure. As a result there was a burn in the shape of where the dressing to cover the line was applied to the skin.

Discussion: Chloraprep® is a combination of 2% chlorhexidine gluconate and 70% isopropyl alcohol (IPA). The use of this 70% IPA reduces bacteria by 99.99%¹. This report is of a rare, but avoidable iatrogenic burn injury to a child. It has been seen a number of times in our burns facility and in theatres. There are a few reported cases in the literature². In recent years it has become popular to prepare intravenous (IV) access sites with an easy to use pre-made prep stick, 'Chloraprep®', but this should be used with caution in children with SSSS due to the high alcohol content.

Conclusion: In SSSS, if any preparation is carried out or lines are inserted, it is important to promptly clean the Chloraprep® or any high-alcohol preparation off the skin properly, as otherwise a patient with this condition may suffer a burn where the alcoholic prep is left on the skin.

References

1 <https://www.bd.com/en-us/offering/capabilities/infection-prevention/skin-preparation/chloraprep-patient-preoperative-skin-preparation-products>

2 Chlorhexidine burns after shoulder arthroscopy. T H Sanders et al. Am J Orthop 2012 Apr;41(4):172-4

The 'Squid Game' Dalgona Candy Craze: the latest trend to cause burn injuries

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

We wish to raise our concerns and raise awareness of a new trend of scald burns seen within our burns service which were sustained whilst re-enacting a scene from the Netflix drama 'Squid game'. In a scene from the show, sugar and baking soda is melted to form dalgona candy and actors demonstrate use of a needle to carve out shapes that are stamped into the candy. Platforms such as TikTok and Instagram have been noted to show people perform these challenges. Luckily the burns sustained within our service were small, superficial burns. However, the use of melted sugar can result in deeper burns requiring surgical debridement, which we have mainly seen through assault cases.

It is important as part of burns prevention to highlight these issues to a wider audience. It is well published that social media has resulted in risk-seeking behaviours resulting in injuries, including burns. Social media is influential on the younger generations and rather than just cast scorn on its use for potential injuries, burns services could utilise it as a source for promoting good first aid and burns prevention strategies.

Has the use of Diphoterine® had a positive impact on management and outcomes of chemical injuries?

The experience of our burn service.

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction

Working within a Regional Burn Centre it often feels as though chemical injuries are like buses, you don't see one for a while and then they all seem to come at once. This is not necessarily an accurate reflection of these types of injury, but it is definitely as it seems in our burn service.

Purpose

Historically copious irrigation was the treatment of choice in relation to chemical injuries. However, in many patients this did not acquire the desired change in wound PH or reduction in pain or burning sensation. Ultimately these patients would often require surgical debridement of their burn. In 2018 our burns service incorporated the use of the chemical neutralising agent Diphoterine® into our practice. This study aims to determine whether the use of Diphoterine® has led to improved outcomes and reduced need for surgical debridement in patients with chemical burns.

Methodology

International Burn Injury Database (IBID) data was collected from two years pre – and post- implementation of Diphoterine® as treatment of chemical injuries on presentation to the burns service. Patient case notes were reviewed and data was collected on the need for surgical debridement, number of inpatient bed days and number of outpatient appointments required, to determine any difference in time to heal.

Results/ Discussion

A total of 410 patients with chemical injuries were seen in our burn service in the four year period covered by the study. 140 of these patients were seen before the implementation of Diphoterine® (Group A) and 270 after implementation (Group B). Of the 270 patients in Group B, 33 were excluded as the time from injury to assessment meant they were unsuitable for Diphoterine® treatment. 87% of patients were male and the average age was 23. Interestingly of all chemical injuries seen in our burn service, almost half were as a result of cement, with the majority of these patients being as you would expect male and in their 20's. Of patients in Group A, 10.7% required surgical debridement vs 8.9% in Group B. Patients in Group A had an average inpatient stay of 0.64 days and required an average of 7.5 outpatient appointments vs 0.51 days and 5.75 outpatient appointments in Group B.

The data shows reduced need for surgical debridement, reduced inpatient stay and reduced number of outpatient appointments for those treated with Diphoterine® vs those not. The reduced number of outpatient appointments suggest a faster healing time in those patients treated with Diphoterine®.

Conclusion

Many patients spend hours irrigating their chemical wounds in ED prior to transfer to the burn service. The use of Diphoterine® has eliminated the need for this to continue on arrival at the burn service. In addition to a significantly reduced amount of nursing time spent with the patient (due to less time spent irrigating the injury), our data suggests that Diphoterine® also leads to a reduction in the need for surgical debridement and reduction in inpatient bed days.

Tetanus Prophylaxis: Are burns patients receiving the right treatment?

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Posters - Session 1 (P1-P25), Palm Court, May 4, 2022, 12:35 - 13:30

Introduction: As per NICE Guidelines, patients with a burn should have their tetanus vaccination status assessed.

Purpose of this study: To establish whether burns patients admitted to the Northern General Hospital are being prescribed the correct tetanus prophylaxis.

Methods: This was a two cycle audit carried out over a 6 month period. 3 months of retrospective data was taken for the first cycle. The data was re-audited after multiple interventions were made.

Results: First cycle Data had 16 patients, the vaccination status was checked in only 25% of cases with only 18% of patients given the correct prophylaxis. Second Cycle had 19 patients, with vaccination status correctly assessed in 90% of patients. Referring hospitals were commonly missing tetanus in their clerking before patient transfer.

Discussion: Patients admitted with a burn are high risk for contracting tetanus which is associated with high morbidity and mortality. An assessment of vaccination status and risk stratification of a wound are important factors in deciding whether to give a patient Tetanus Ig, Vaccine or no treatment. Referring hospitals were found

Conclusion: This study has shown that by creating local guidelines, updating the referral clerking pro-forma and changing the junior doctor handbook that we can achieve greatly improved patient care.

Think Tetanus

1. Identify every patient's tetanus status
2. Classify it around extent of tetanus, proven and evidence of high risk
3. Prescribe appropriate tetanus protection as below
4. Inform GP in discharge letter to confirm status / complete immunisations

Full immunisation

- Primary course of 3 doses of vaccine at 0, 1 and 3 months or split followed by 2 boosters (usually at 5 & 10-12 yrs)
- Part of routine immunisation schedule for UK schoolchildren since 1968

Tetanus prone wounds

- Wound or tear involving tetany delayed more than 6 hours
- Significant devascularised tissue
- Puncture injuries
- Foreign bodies
- Compound fractures
- Wound or tear with systemic signs

High risk wounds

- Heavy wound contamination
- Extensive devascularised tissue

Patients do not need a tetanus booster every 10 years - this is a myth!

	Clean wounds	Tetanus prone wounds	
		Normal risk wounds	High risk wounds
Fully immunised	Nothing	Nothing	immunoglobulin
Primary immunisation complete - boosters incomplete but up to date	Nothing	Nothing	immunoglobulin
Primary immunisation incomplete or complete - boosters not up to date	vaccine	immunoglobulin and vaccine	immunoglobulin and vaccine
Not immunised, immunosuppressed or unknown status	vaccine	immunoglobulin and vaccine	immunoglobulin and vaccine

What to prescribe?

Vaccine - Boostrix 0.5ml IM

immunoglobulin - (200 IU) human tetanus immunoglobulin (60 in a different size)

(NB: 0.5-2.0 IU dose injury, heavy contamination or burns)

References: The Green Book, Public Health England
NICE Immunisation

M. Jones, L. Macdonald & J. Vackewick
Review date December 2018

The impact of a burns facility on inpatient repatriated patients with significant burns

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

University Hospitals of Leicester (UHL) is a burns facility and is part of the Midlands burn care network. After the initial treatment at a burns unit, Leicestershire patients are repatriated to UHL.

The aim of this audit was to evaluate the number of inpatient burn repatriations at UHL in the past 7 years. This audit aims to outline the care a facility can provide in the ongoing management of burn treatment

Data was collected from international burn injury database (IBID) to determine the number of patients that were repatriated to UHL between 2014 and 2021. Patient notes were then audited to extract information regarding their demographics, size of burn, length of stay in the burns unit, length of stay at UHL and treatment received at UHL.

During the past 7 years 30 burn patients (18 male and 12 female) were repatriated for inpatient care to UHL. The median age of the patients was 58 [20-84]. The median percentage of the burn was 9% [1-60]. The length of stay in the burns unit was 14 days [3-88] followed by a median of 8 days at UHL [1-44]. 28 patients required physio and OT input, 11 required psychological input and only 3 patients required further surgery due to unhealed burns. The median number of dressing clinic appointments post discharge was 3 [1-31].

In conclusion, repatriated burns can require equally substantial care at a facility level. Some of these patients require significant input from an MDT setting and UHL staff have been trained to manage significant burns after repatriation. This is also due to UHL having an ECMO centre which aids in further training of staff. This audit does not look at the majority of repatriations which include dressing follow up only.

A Blooming Success: Green Scrubs and Green Fingers

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

Introduction:

During the Covid-19 pandemic, the QVH Burns Unit moved location twice within 12 months in order to create a Covid-free cancer hub for the Southeast. Finally settling in the former Paediatric Burns Ward. Due to these moves, there was a lack of "belonging" among Burns Unit staff and morale was especially low. The pandemic had taken its toll on patients and staff alike, many craved an area to sit peacefully, reflect and have some all-important "time out". Thankfully, the new location had access to the former Paediatric play area. It now belonged to Adult Burns and it provided a safe space to let green-fingered staff's imaginations blossom.

Purpose:

To create a patient garden that would directly benefit patients and instil in staff a sense of belonging.

Objective:

A collaborative effort from the MDT decided a new patient garden could be the cure for the staff's low morale. The aim was to provide a communal safe environment that incorporated all the benefits that a garden can provide. Furthermore, it needed to be interactive so that patients could become involved as part of their therapy, as well as a space for mindfulness and to be away from a hospital/clinical environment.

Methods:

The new working group brought the nurses, HCAs and therapists together, with a shared vision for the garden. To finance this scheme, a charity grant was requested from QVH Charity Funds. A list of gardening equipment, plants and furniture was compiled by the MDT then verified by the infection control team. The bid was successful and everything was ordered by the Head of QVH Charity. In order to ascertain patients' and staff views of the success of the garden, questionnaires were made. A random sample of unit staff and patients were asked about their views on the garden.

Results:

Staff respondents (n= 12) all agreed the patient garden would benefit patients' wellbeing and staff morale. All but one felt it was a multidisciplinary effort. All but 2 agreed they had the opportunity to contribute to the garden creation. Nobody believed the upkeep of the garden by staff was a bad idea. Patient survey results to be confirmed in spring when the garden is more accessible

Discussion:

It is clear from the staff survey that the garden has been a positive endeavour for staff and that it is likely to have a positive effect on patients. The new garden has achieved one of its goals of increasing staff morale. To be finalised once patient results have been gathered.

Conclusions:

Multidisciplinary projects are not only beneficial to patients but can also be the catalyst for better communication and collaboration between staff on a daily basis. This project broke down barriers, built trust and bonded the team during the uncertain times of Covid. The creation of the patient garden also inspired staff members to develop a new staff garden, which used throughout the day and is much loved and sought-after by other departments.

Biodegradable Temporising Matrix in Acute Burns and Complex Soft Tissue Reconstruction: The Newcastle Experience

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

Introduction:

Biodegradable Temporizing Matrix (BTM, PolyNovo) is a fully synthetic polyurethane bilaminar matrix that has demonstrated the potential to revolutionise the management of acute burns and complex soft tissue reconstruction. While its use has been well established in Australia, it is relatively new in the United Kingdom. We present our unit experience using BTM in patients with acute burns and complex soft tissue reconstruction needs.

Purpose of the study:

To assess the effectiveness of BTM in achieving coverage of complex or extensive wounds following debridement or excision in a tertiary burns centre in the North of England.

Methods:

Between December 2020 to December, five patients were treated with BTM for indications inclusive of burns, acute trauma, and elective scar resurfacing surgery. The dermal template is used as a wound temporising device following wound preparation, which undergoes a period of integration during which repeated dressing changes are performed. The template is deemed integrated once it appears to be vascularised with a capillary refill on clinical examination. It is then delaminated before definitive reconstruction is performed, typically in the form of meshed split-thickness autograft.

Results:

In total, 31% TBSA was treated with BTM for five patients (Age 7-59 years). The average size of defect covered by BTM was 6.2% (Range 0.5-18%). The mean timeline of BTM application from injury was 9.4 days (Range 0-27 days), with a mean time to integration of 24.8 days (Range 20-28 days). The average time to wound closure is achieved by 27.6 days (Range 20-41 days) from the initial BTM application. Two cases experienced failure of BTM integration in 0.25% each, which was due to under debridement and delayed necrosis, respectively. None of the cases developed wound infection following the application of BTM. One case was definitively reconstructed with free flap and the rest with meshed split-thickness autograft. There was no loss of definitive reconstruction. All five patients completed the treatment process and survived their respective injuries.

Conclusion:

BTM has an established role in the management of burns injury in Australia and is gaining popularity in treating other complex wounds. Our experience has demonstrated that BTM can be used in various indications where immediate split-thickness autograft is undesirable, with minimal risk of device-associated adverse events. While infection was a common problem experienced in other dermal matrices, it appears that BTM demonstrates a higher level of resistance, leading to a lower rate of reconstructive failure.

Burn depth assessment in tattooed patients: a diagnostic challenge and potential pitfall in treatment

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

Introduction

The art of tattooing is at least 12,000 years old and have now become a fashion choice in today's culture. It is estimated around 35% of the population, aged 30 to 39, have tattoos within the United Kingdom.

When examining burn injuries it is important to assess burn depth correctly as management can differ in those with superficial partial-thickness burns compared to those with deep partial-thickness burns, as the latter may warrant surgical excision.

However, distinguishing burn depth can be challenging in patients with pigmentation secondary to tattoos. None more so than coloured pigmentation which may camouflage a more superficial burn as a deeper burn. Incorrect assessment may lead to unnecessary operative management which can have significant adverse sequelae for the patient.

Case series

We present four patients who attended our emergency department with their burn injuries. Three patients sustained flame burns to their upper and lower limbs, and one presented with a contact burn to his arm. All patients received initial first aid with cold water. The burn injury was assessed following debridement of the blisters. However, due to tattoo pigmentation overlying the burn, there was difficulty in eliciting the capillary refill time and the colour of the burn. Depth of burn was reliant upon sensation, evidence of exudate and follicular damage.

Two patients were taken to theatre for management of their burn injuries and a test shave to the area with tattoo pigmentation. These areas were found to be bleeding upon excision, indicating a more superficial burn. The remaining two patients healed with conservative management only.

Discussion

There is limited literature regarding patients with such injuries and Krezdorn et al have been investigated the use of laser speckle contrast analysis (LASCA) in assessing tattooed burn lesions by comparing non-pigmented skin with multi-coloured tattoos. It was found that pigmentation from the tattoo alter the pattern of perfusion with LASCA in both tattooed and normal skin, moreover, it was unable to differentiate between superficial and deep partial-thickness burns. (1)

Although further research is required, small burn injuries with overlying tattoo burn pigmentation may benefit from a trial of conservative management, with close monitoring, to ensure there is no progression and adequate wound healing.

Conclusion

This series of cases highlights the difficulties in assessing burn depth for these patients. Subjective judgement is required, by an experienced professional, when evaluating the depth of burn injuries masked by tattoo pigmentation. This is to ensure that patients do not undergo unnecessary surgery, which may lead to significant morbidity, prolonged hospital stay and high-cost implications.

Therapy compliance with Burn Standard A.06 related to burn patients' return to employment

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

Burn Standard A.06 states that “all patients are helped to return to education, employment and independent living, at a time when this is appropriate”. A Burn Network developed a guideline to aid compliance with the required standards of care.

For the purposes of this audit it was decided to focus on return to paid employment only. This audit details the first stage looking at retrospective data from patient notes completed prior to the development and publication of the guidelines in one service within the network.

The aim of the audit was to ascertain how many patients had documented evidence of employment status and return to work discussions in their therapy notes.

Method - Adult patients were identified through the Functional Assessment for Burns (FAB) outcome measure spreadsheet (the last consecutive 100 patients recorded as admitted in 2019). Eighteen patients were excluded as they did not have follow up with the services' therapists and data could not be collected. The results were analysed against the audit questions as well as demographic and burn injury data being collected.

The results of this audit show 83% compliance of documentation of patient's employment status and 67.4% compliance with documentation of return to work. The results will also show trends related to age, gender, mechanism and TBSA of burn and discharge FAB scores. The 2 patients with the longest length of hospital admission did not return to employment. The shortest time between discharge and return to work was 10 days. The longest gap was 5 months (147 days). The average length of time between discharge and return to work was 48.3 days (just under 7 weeks).

For the 10 patients that had not returned to work, eight had evidence that a discussion related to employment had occurred with the therapy team. Of the 19 patients that had returned to work, there was documentation in 5 sets of notes regarding the physical effects of the burn injury related to their employment. There was only documentation related to the psychological effects of the burn related to employment in 2 patient's notes.

The discussion recognises the difficulty in objectively verifying compliance due to the subjective wording of the standard; when is the 'appropriate' time for return to employment? Limitations of the study are discussed including that therapy notes were reviewed only and therefore psychotherapy and medical notes were not included. Additionally an important factor of whether the burn was sustained in the workplace was not noted and should be included in further audits. Another audit is planned to review compliance following the introduction of the guideline, however has been delayed due to the altered work patterns following the Covid pandemic.

Bronchoscopically Graded Burns Inhalation Injury: A Systematic Review of Clinical Outcomes

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Introduction: The Abbreviated Injury Score (AIS) grading system is the most widely used bronchoscopic classification for assessing the severity of burns inhalation injury. However, there is a lack of clarity regarding the effect of bronchoscopically graded inhalation injury on clinical outcomes.

Purpose: This systematic review aimed to evaluate whether more severe grades of burns inhalation injury were associated with worse outcomes.

Methods: OVID MEDLINE and EMBASE were searched from inception to 5th April 2020, with an updated search performed on 14th January 2022. Clinical studies utilising the AIS bronchoscopic system to grade inhalation injury were deemed eligible if mortality, the primary outcome, was reported by AIS grade. For comparison, AIS grades 0, 1 and 2 constituted a low-grade (milder) injury and AIS grades 3 and 4 constituted a high-grade (severe) injury. The level of evidence of each study was assessed as per the Oxford Centre for Evidence-Based Medicine guidelines. This systematic review adhered to the PRISMA statement.

Results: The search identified 189 papers, of which 14 underwent full-text review and 5 were included for narrative synthesis. These comprised 4 single-centre and 1 multicentre, retrospective study designs. The total number of patients was 694. Inter-grade differences in total body surface area burned were non-significant in all 5 studies. Three studies demonstrated a statistically significant increase in mortality for more severe grades. Four studies permitted mortality analysis by the AIS classification decided a priori, including 521 low-grade injuries and 113 high-grade injuries. The mortality rates reported ranged from 4-19% (median: 11.5%) for low-grade injuries to 15-47% (median: 31.5%) for high-grade injuries. The use of AIS was inconsistent between studies, with all papers performing some further stratification to minimise clinician bias or for statistical purposes. The median level of evidence of included studies was 3.

Conclusions: Mortality rates were higher in more severe AIS-graded burns inhalation injury. Refinement of the AIS is recommended to enable standardised bronchoscopic assessment of inhalation injury.

Does 'Prison Napalm' work? Measuring the cooling temperature of sugar solution burns in a porcine model

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

Introduction

In the UK, distinct to many other jurisdictions around the world, prisoners have a legal right to have kettles provided in their cells. An unfortunate side effect of this is that boiling water is readily available for assaults on inmates and staff. Prison lore has it that adding sugar to the water, producing 'Prison Napalm', increases the severity of the injuries caused through higher initial temperature, increased liquid viscosity and lower emissivity of heat. The resulting scald injuries are frequently seen in UK burn units. They are often severe, but it is not known if the addition of sugar influenced this.

Purpose of the Study

To evaluate the proposed mechanisms in a dead porcine model.

Methods

Dead pork belly tissue was prepared into equal 10cm x 3cm units. These were pre-heated to human body temperature (36.3-38.4°C). The units were held at an angle of 45° to mimic a scald scenario with solution runoff. Five water solutions with different concentrations of sugar (0, 250, 500, 1000 and 2000g/L) were heated to boiling using standard commercially available kettles and then poured directly onto the tissue. Intradermal post-exposure temperatures of the dermis were measured at one-minute intervals for a duration of 10 minutes.

Results

One minute post exposure, average intradermal porcine temperatures were:

- 51.7°C for the 2000g/L solution.
- 50.8°C for the 1000g/L solution.
- 48.9°C for the 500g/L solution.
- 47.9°C for the 250g/L solution.
- 46.7°C for the pure water group.

The rate of cooling was similar in all solutions with an average loss of 1.4 °C per minute. Using a generalised mixed model accounting for concentration and time period, it was identified that increasing sugar concentration resulted in statistically higher temperatures of burn ($p=0.006$).

Discussion

Higher concentrations of sugar caused a higher initial temperature but did not influence cooling rates. This suggests that 'Prison Napalm' attacks will indeed cause more severe burns than those utilising plain water, but not for all the widely believed reasons.

Conclusions

We report the first experimental model in the literature explaining possible mechanisms of action of 'Prison Napalm'. The implications of our findings will be discussed, including recommendations for limited access to kettles in prison cells. Where such access is deemed a right, consideration should be given to temperature restricted devices, as is the case in other countries.

Declarations

No live animals were hurt during this study and no experimental specimens were wasted

A service evaluation of the cosmetic camouflage service at a UK regional plastic surgery department

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Introduction

The negative impact of scars and cutaneous dermatoses including vitiligo and rosacea are well known. Cosmetic camouflage is one potentially helpful intervention and involves the application of a range of waterproof products temporarily conceal pigmentation and contour irregularities. Our NHS cosmetic camouflage service receives a large number of referrals each year, a substantial proportion of whom are referred for burns scars.

Purpose of the study: To develop a better understanding of the cosmetic camouflage service provided at a regional burns and plastic surgery centre, including an understanding of patient groups and anatomical areas treated.

Method

A retrospective analysis reviewed records of all patients referred to the camouflage service between 1/2019 and 3/2020. The data collected consisted of: patient demographics, types of conditions referred, the anatomical areas commonly treated, the common referring professions and the type of products used or prescribed for patients.

Results/Discussion

107 patients were referred in that time frame. The male:female ratio was 16:84. Of the 15.9% of male patients referred, 35%(n=6) declined intervention. The median age was 42, range 8-78.

Dermatologists and Plastic surgeons were the commonest referrers, responsible for 44% and 40% of all referrals, respectively. General Practitioners (GPs) made the lowest number of referrals (5%). This could suggest a lack of awareness about the service in primary care, but more likely to be a result of 'gatekeeping' within plastic surgery.

Adverse scarring was the commonest reason for referral with a total of 44 patients (41%), of which surgical scars were responsible for 18 and burn scars 4. Other conditions included rosacea (16), vitiligo (11), and acne (12). The face was the most common anatomical area referred (71) whilst conditions on the abdomen had the lowest referrals (1). Other anatomical areas referred to the service were upper limb (8), lower limb (13), chest (13) and scalp (1). Products commonly prescribed included Veil and Dermacolor which are high coverage topical products available in many shades and available for NHS prescription. Only one consultation was required for patients and follow-up prescriptions were planned for GPs and further follow up only if necessary.

Conclusion

This study was the first ever service evaluation carried out at the regional centre. Cosmetic camouflage acts as a non-invasive intervention which can be superior to other forms of treatments for some conditions. We found that the service is useful for conditions found in visible anatomical areas, particularly the face and that the service is used more by female patients. We were unable to gather enough data concerning compliance as most referrals were dealt with in one appointment and with no further follow-up. Further studies should assess compliance with use of prescribed products, patient's perspectives and patient satisfaction with the cosmetic camouflage in order to determine ways to improve the service and this will be implemented in due course.

Burns service development & community education in Northern Tanzania

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

Introduction

Burn injuries are one of the commonest injuries in the developing world, with around 90% occurring in low and middle income countries. A lack of specialised burn centres in central Africa means the burn injured population of Northern Tanzania are often left with high levels of morbidity and mortality. Primitive cooking arrangements, poor health and safety and lack of access to appropriate medical intervention are all causal factors in these injuries and subsequent poor outcomes. This was the stimulus in 2014 for a multidisciplinary team of burn care experts from Northern England to be established in order to provide assistance in improving the outcomes for patients in Northern Tanzania.

Purpose

A team of nurses, surgeons and supporting staff was established with the purpose of aiding the setup of a Burns Unit over a number of years as an ongoing collaboration between the UK and Tanzania. The Unit is located in the Kilimanjaro Christian Medical Centre (KCMC), whilst there the team embedded evidenced based burn care through nursing and medical education. This was complemented by nursing and surgical clinical assistance and intervention. Additionally the team delivered burn prevention education to rural community groups and schools who had been identified as a large proportion of the patient population.

Methods

Informal interviews were conducted with the Tanzanian team members to ascertain what level of knowledge they currently had and what would need to be addressed and implemented. Observations of the unit's performance and care delivery were undertaken by the nursing team. Educational sessions were delivered as well as mentoring in clinical practice, continual observation carried on post these activities to assess any improvement in care delivery and the benefit to patients. A case study on one patient, who was treated over a period of three years, was undertaken to explore the progress of his condition and quality of life post injury.

Discussion

Over 50 patients received acute surgical care and upwards of 70 received nursing care during the five year project with two patients receiving acute then subsequent reconstructive treatment during multiple trips. Each of these 70 + patients either benefited from surgery they would not have received or enhanced nursing care as a result of the team's assistance. The Burns unit in Tanzania improved their dressing care, nursing documentation and burn knowledge. The prevention education that was delivered was aimed at children, school teachers and community workers, all groups who are capable of disseminating information amongst their homes and communities.

Conclusion

The quality of life for burn injured patients in northern Tanzania has dramatically improved as a result of the volunteer team's time and expertise. The case study of the patient showing repeated surgeries, subsequent dressing care and education on rehab show how they have been able to resume some activities of daily living and start to enjoy his childhood again. Positive feedback from educational sessions on burn prevention and first aid has emphasised the need for this work to carry on and be repeated in other developing countries.

A single centre experience of AlloSource ALLOSKIN™ RT use in the management of small and large burns

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

A single centre experience of AlloSource ALLOSKIN™ RT use in the management of small and large burns

Introduction

Allograft skin (AS) transplantation has long been considered the gold standard for wound coverage/ tissue replacement post damage through burn injury – and to an extent other complex wounds. Despite the increasing availability of alternative biosynthetic coverage options and recent systematic reviews pertaining to AS versus alternatives, there is limited evidence that one coverage option is superior to another. It is therefore prudent to maintain AS as a key player in the burn surgeon's armamentarium. The choice then comes down to which AS to use. Since August 2021, AlloSource through Regen Medical have been our sole supplier of AS. Through a mini-series of patients, we propose to share our experience and patient outcomes of the product.

Purpose of study

Share the experience of our centre on using the AlloSource ALLOSKIN™ RT product in the management of both small and large burns.

Methods

Patients appropriate for AS coverage were identified by experienced burns Consultants based on clinical need. The manufacturers offer the product pre-prepared as sheet graft or meshed – 1:1 or 2:1. To our series, only pre-meshed 1:1 was used.

Burns greater than 1% TBSA were sharply debrided in theatre under general anaesthetic prior to coverage. These patients remained inpatients until at least the first graft check. Burns less than 1% TBSA were debrided on the burn's unit with Nexobrid prior to AS coverage and discharged the same day to be managed on an outpatient basis.

Results/Discussion

We have used the product on eight patients between August 2021-January 2022 with a TBSA% coverage range of 0.5-15%. The burn TBSA% range was 0.5-27%. Of our cohort, two patients had AS post necrotising fasciitis debridement and one post excision of Ecthyma Gangrenosum. The remaining five patients had AS coverage post burns debridement (flame n=3, sunburn n= 1, contact n=1).

Of our cohort, one patient had AS removal due to failure and required autografting at 1 week. Five patients had planned AS removal for autograft replacement. One patient had partial AS integration and one patient had complete AS integration requiring no further debridement or dermabrasion.

From clinical staff experience, the mode of product ordering and delivery is simple and the unit only pays for what is used; unused product is returned and refunded.

Conclusion

The AlloSource product is well tolerated by patients and easily applied by clinicians. The pre-meshed product reduces theatre time and resultant physiological stress a prolonged general anaesthetic can cause. Of the patients who have integration of the product – partial or complete, one has been reviewed in our multidisciplinary team scar clinic. The scar is asymptomatic and of no aesthetic concern to the patient. Post objective review by the clinical team, no further intervention was required.

As an AS, our department has significant success with the product, and it should be considered as an alternative source of AS within other units – its primary benefit being the availability of pre-meshed options.

Proposed opportunities in improving burns care that are available with a satellite HTA license - a single centre experience

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

Proposed opportunities in improving burns care that are available with a satellite HTA license - a single centre experience

Introduction

Stoke Mandeville Hospital (SMH) is 479 bedded district general hospital – making it the largest in the Buckinghamshire area. Being a burns unit, it runs a daily acute burns outpatient service, has 6 burns specific inpatient and 2 ITU beds.

As with all NHS departments, fiscal constraints play a major role in innovation and quality improvement, however improved patient outcomes should be central. We aim to develop a more diverse ambulatory care service, reducing time in operating theatres and disruption to patient lifestyle through unnecessary inpatient stays or procedures.

Through our relationship with Regen Medical, SMH has been awarded a Human Tissue Authority (HTA) satellite license. As a satellite premises, we have permission to store allograft onsite in our own freezer located on the burn's unit, away from main theatres. We are one of only two sites in the UK to have access to this facility for burns.

Purpose of study

☐ Demonstrate potential advantages of onsite allograft in the management of both small and large burns

☐ Share experiences we have gained through visiting established burns units within our network as we seek to expand our own service post Covid-19.

☐ Open channels of discussion and feedback with members of the burns multidisciplinary team and identified patients – our “Burns Ambassadors” to ultimately improve patient care and outcomes.

Methods

Cost analysis was completed reviewing average time in theatre, debridement, and dressing prices for both small and large burns. Expenditure on outsourced allograft as a product, its delivery and returns costs were calculated from 2006-2020. This data was presented to departmental management as evidence for the cost-benefit in procuring an onsite allograft freezer and undertaking minimally invasive debridement, bypassing theatre.

A mini-series of small burns cases was completed within the department whereby patients were treated in the burn's unit with Nexobrid and outsourced allograft to ensure this model of care was feasible and acceptable to patients prior to moving to onsite allograft.

Results/Discussion

Our mini-series of cases have demonstrated the feasibility and success of this treatment model for small burns: minimally invasive debridement and allograft coverage on the burn's unit

Our unit is in the development stage of setting up a "Burns Ambassadors" group – a collective of previously treated patients who are happy to participate as a PPI group. This PPI group will be central in the review of clinical success of this proposed treatment pathway and future service improvements.

Conclusion

Being a satellite premises with an HTA license means ready access to allograft for patients with both large and small burns. It expands the potential for patients with smaller burns to undergo minimally invasive debridement on the burn's unit, with immediate gold standard wound coverage. The application of allograft as a "dressing" has been shown to reduce the burden of care (time and monetarily) on both patient and clinical staff: they require fewer wound reviews and dressings changes.

Playing catch-up as a team: Using the CARE Burn Scales to support prioritisation for re-booking into the multidisciplinary complex scar clinic

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Posters - Session 2 (P26-P38), Palm Court, May 4, 2022, 15:50 - 16:20

Introduction:

The multidisciplinary complex scar clinic provides patients with complex scarring, and their family members, the opportunity to receive specialist support and advice from the burns multidisciplinary team (MDT). Appointments involve assessment of how the scar(s) are healing physically, screening for psychological difficulties, advice regarding scar management and consideration of and referral for further interventions, such as surgery, laser treatment, steroid injections, pressure garments and psychological therapy. During the Covid-19 pandemic, many clinics were cancelled, and patients put on-hold. This resulted in a growing list of patients waiting to have new scar clinic appointments booked or cancelled appointments re-booked. The MDT worked together to develop a strategy to prioritise these individuals, based on clinical need.

Purpose of the study:

The primary purpose of this study was to describe the novel process of prioritising and re-booking patients into the multidisciplinary complex scar clinic using a locally developed scar triage tool and the CARE burns scales (Griffiths et al., 2019); and to summarise the results of this process. The second purpose was to review the learning that has taken place and consider future implications for the MDT complex scar clinic.

Methods:

Quantitative data were collected from the online patient record system and audit records. A narrative summary was produced based on clinician experience and minutes from multidisciplinary meetings. A survey and semi-structured interviews were conducted with team members to review learning and consider future recommendations.

Results/Discussion:

Patient information was extracted from the online patient record system (N=537). The majority of patients did not require triage (N=343, 62.9%). The remaining patients (N=194, 36.1%) were sent the CARE burns scales to complete online. Responses were used to support the prioritisation of scar management and psychological input. The locally developed scar clinic triage tool was used for patients who we were unable to complete the CARE burns scales. Patients who scored highly on the psychosocial subscales of the CARE burns scales, but did not require medical intervention, were referred to psychology (N=6). The remaining patients were prioritised into three categories (low, medium and high) based on their scar triage and CARE burns scales scores. Patients in the low and medium categories were triaged via telephone and booked into scar clinic or discharged (N=120). Patients in the high category were booked into scar clinic within 6 weeks (N=68), with additional clinics scheduled to facilitate the catch-up. Overall, the triage process indicated that 13.8% of patients on the waiting list required immediate scar management and/or psychological review. No serious incidents were identified.

Conclusion:

Reviewing the development of a novel strategy to prioritise and rebook patients in the burns complex scar clinic has led to further consideration regarding methods of prioritising and streamlining service delivery, based on clinical need, using tools such as the CARE burns scales.

References

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Dan's Fund For Burns Adult Befriender Peer Support Service

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction

As part of a wider project, Dan's Fund for Burns (DFFB) identified a need to improve the availability of post-hospital emotional and physical wellbeing resources for adult burn survivors. Many burn survivors face challenges integrating back into everyday life and would therefore benefit from regular support beyond the clinical setting, including peer-support.

Purpose of the Study

The DFFB Adult Burn Support UK Project aims to address this gap in support availability by developing a unique Befriender Peer Support Database, which allows trained burn survivor volunteers to be matched up with individuals seeking support.

Method

In September 2021 DFFB launched a unique database designed by Oblong Tech Ltd, to 'match' individuals based on criteria identified as important to them - such as age, gender, ethnicity, type/location/age of burn. Following completion of a training workshop and DBS clearance, 'Befriender' details are added to the database to await matching with an appropriate 'Befriendee' once referred into the service. When a match is made, both individuals are contacted, and the relationship phase can begin with ongoing support from DFFB.

'Befrienders' are adult burn survivors offering voluntary one-to-one support to other burn survivors that might be struggling emotionally and/or physically. Potential Befrienders must feel willing and able to support others by sharing their own lived experiences of their burn injury. These individuals must be recommended by a burn service professional.

'Befriendees' are adult burn survivors seeking peer support and guidance from someone who has the shared lived experience of a burn injury. Individuals can self-refer via an online application that includes ranking criteria for 'matching'.

The initial Befriender-Befriendee commitment is to meet once a week for 4-6 weeks. This can be reviewed and continued if desired by both individuals. Meetings are held online with a view to include in-person support in the future.

Results and Discussion

Recruitment of Befrienders involves an online application, interview, and DBS check. Befrienders must complete the Training Workshop, developed in collaboration with the Psychological Therapies Service at Broomfield Hospital (Chelmsford). The training covers safeguarding, managing boundaries, confidentiality, disclosure, risk management, communication skills, self-care and burn specific befriending support.

The first online interactive workshop was delivered in 2021 via Zoom, with positive feedback from all participants. There are now 15 trained Befrienders on the database. Several individuals have expressed interest in accessing the service and so far 3 have completed and returned befriendee forms. The service has been advertised through social media and leaflets circulated to burn services and ongoing referrals are encouraged.

Conclusions

A second group of 15 burn survivors will soon take part in the next Befriender Training Workshop and their details will be added to the database to await matching. Having 30 trained Befrienders on the database makes this a viable peer support option. Including online platforms for peer support meetings enables DFFB to match the preferences of Befriendees across the country without the need for geographical closeness.

***WINNER - BEST POSTER (Care)** Developing a burn-specific perioperative checklist: version zero, a starting point**

Dr Laura Cappuyns^{1,2}, Andrew Holme¹, Ms Susan McCrossan³, Nicole Lee⁶, Mr Simon Booth⁵, Mr Anirban Mandal¹, Mr Dilnath Gurusinghe¹, Mr Ciaran O'Boyle⁴, Mr Mohammad Anwar³, Mr Baljit Dheansa⁵, Ms Nora Nugent⁵, Mr David Ralston⁷, Professor Kayvan Shokrollahi¹

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction

The World Health Organization (WHO) surgical safety checklist is a widely applied tool in operating theatres aimed at identifying potential faults or omissions before they can culminate into harm to patients. Its use has led to decrease in peri-operative errors and adverse events and promoted an increase in teamwork and communication in surgery worldwide. However the generic checklist does not take into account certain considerations unique to sub-groups of surgical patients. This is particularly true for burn patients. Patients with large burns often have complex metabolic and physiologic derangements, therefore putting them at higher risk of peri-operative complications. The WHO surgical safety checklist can potentially be adapted to provide a framework for specialty-specific safety checks, in this case for burns.

Aim: To adapt the WHO surgical safety checklist to ensure inclusion of burn-specific parameters, and streamline burn care and safety.

Methodology

Through initial dialogue between multiple burns services including burn surgeons, theatre nurses, and anaesthetists, a preliminary checklist of items relating to peri-operative considerations specific to burn patients was assembled. These considerations included parameters to be checked the day before surgery, before induction of anaesthesia, before the start of the procedure, and post-operatively.

A preliminary adaptation of the WHO theatre checklist was then created based on these burn-specific parameters, as a prelude to developing a formal burn-specific WHO surgical safety checklist for implementation. This 'version zero' is intended as the starting point to pave the way for a version 1.0 of a checklist to be created by assembling a committee across numerous burn services to devise and implement a modified Delphi methodology to finalise parameters for the burn-specific WHO theatre checklist.

Discussion

It was felt that there would be considerable benefit for major burns in starting the checklist the day before. Some of the key parameters included:

- 1) Day before surgery:
 - a. Ordering of allograft / skin substitutes
 - b. Cross-matching of various blood components
 - c. Pre-optimising patients for theatre
 - d. Pre-operative microbiology discussion
 - e. Infection status to determine operating list order
 - f. Arrangement for medical photography
- 2) Before induction of anaesthesia
 - a. Theatre pre-warming and check of overhead heaters
 - b. Agreement of potential graft donor site with patient

- 3) Before start of surgical intervention
 - a. Shaving of graft donor sites
 - b. Preparation of dressing material
 - c. Preparation of local anaesthetic infiltration
- 4) Immediately post-operatively
 - a. Post-operative positioning and splintage
 - b. Post-operative warming

Conclusions

The burn-specific theatre checklist would start the day before surgery and would aid appropriate pre-operative optimisation of patients. It has the potential to improve safety, the efficiency of theatre utilisation and time management, reduce the incidence of cross-infection, as well as improve communication. Its wider use has the potential to improve the patient care pathway and this preliminary work paves the path for collaboration across services towards a final checklist.

Overcoming challenges around wounds and wound dressings in burn patients requiring nerve conduction studies

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction

Peripheral neuropathy is the most frequent disabling neuromuscular complication of burn injury, and there are also a number of other indications for peripheral neurological investigations. According to the literature, burn-associated peripheral neuropathy has been found to vary widely from 2% to 52%. Optimal timing in performing electrodiagnostic tests is critical in early diagnosis and treatment, possibly resulting in better outcomes for burn patients. Ideally, nerve conduction studies (NCS) should be performed when symptoms are first described. In our Burn Centre and likely elsewhere, it can be challenging to undertake NCS in these patients because of the unique challenges posed mainly by extensive wounds, bulky dressings and infection risk. Neurophysiologists often advise full healing of wounds prior to investigations resulting in the potential for extensive delays in diagnosis.

Purpose of study: 1) To outline the challenges hindering early performance of NCS in burn patients and propose possible solutions.

2) To develop a collaborative standard operating procedure (SOP) which can facilitate the timely undertaking of NCS in burn patients.

Methods

Using a multi-disciplinary approach involving burn surgeons, burn nurses, members of the infection prevention team, pain management team and neurophysiologists, obstacles hindering performance of NCS in acute burns were outlined and solutions suggested and agreed to enable performance of NCS in burn patients with wounds and dressings.

Results

Through collaborative efforts new protocols and a SOP have been developed which address the logistics around performing the tests in patient who have unhealed burns requiring dressings. This SOP details the approach to wounds and dressings, how to minimise infection transmission, how to deal with patients with multi-drug resistant infections and analgesia requirements prior to performing these tests.

Conclusions

Establishment of this new protocol has facilitated timely diagnosis and treatment of peripheral neuropathy in burn patients and is something we are keen to share with other services.

Delivering a Regional Emergency Management of the Severe Burn Course in a Covid-secure way

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction

Severe burns injuries are devastating to both the patient and their family. It is essential that Healthcare Professionals have the knowledge and skills to optimise care and management of these patients to maximise survival and outcomes. The Emergency Management of the Severe Burn (EMSB) course teaches Healthcare Professionals a structured and step by step approach to the initial management of the severely burned patient and this course is internationally recognised.

During the Covid-19 Pandemic UK EMSB courses were put on hold to minimise the transmission of Covid-19. The lifting of Covid-19 restrictions gave the regional burns service an opportunity to deliver a face-to-face EMSB candidate course with various essential course modifications to safeguard everyone.

Purpose

Our aim was to maximise learning outcomes whilst keeping students and faculty members safe, complying with the latest Government regulations and following EMSB Senate guidance.

Methods

Recognising the need to work in a different way we introduced the following course adaptations:

- In order to safeguard everyone candidates, faculty members and moulage victims were strongly encouraged to take a lateral flow test 24 hours prior to attending our EMSB course.
- Following EMSB national senate guidelines all course delegates were required to wear a face covering at all times unless medically exempt.
- All classrooms and lecture hall had a Covid-19 risk assessment and were set up to ensure social distancing requirements were met.
- Several easy access facemask and hand gels stations were set up throughout the venue.
- Check in times were staggered to minimise contact and procedures were streamlined; full course paperwork, pencils and pens were prepacked and allocated on arrival.
- Candidates were placed in bubbles and followed a one-way system to ensure they entered and exited each teaching session safely.
- Practical elements of EMSB were trained using non-contact methods and sessions had measures to ensure ventilation, social distancing and disinfection between candidates.
- Moulage victims were made up individually and all camouflage makeup and make up applicators were single use and disposed of safely. Application of makeup focussed mainly on limbs and chest areas avoiding facial areas that would involve removal of face masks.
- Refreshments were served rather than self-service to minimise cross-infection, food snacks were individually wrapped, and lunches were made up in individual meal boxes.

Results/Discussion

23 candidates attended our EMSB course, and their course evaluation showed that candidates felt safe and had appropriate social distancing. Feedback from course faculty members showed that they also felt the course ran safely and smoothly with the modified Covid precautionary measures and were also able to teach and assess effectively. Learning from this first "COVID secure" EMSB course was promulgated to subsequent courses at other centres.

Conclusion

Safe and effective EMSB courses can be conducted using meticulous planning, risk assessments and introducing Covid secure measures to teaching sessions. The lessons learned have been cascaded to support other regional EMSB courses and ensure that this essential learning resumes after the disruption of the pandemic.

Providing psychosocial support for people affected by burn injuries: how can online peer-informed support aid recovery?

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction: Peer support is an element of psychosocial recovery which is built upon the foundations of shared experience and a mutual understanding of physical or psychological pain. Peer-informed information can be found online and recent research has found to be helpful for those with chronic health conditions and their families. However, little exists in the form of online peer support for people affected by burn injuries.

Purpose: Peer support is an important component of psychosocial recovery for people affected by burn injuries (those with the burn, parents, other family members.) Yet, as peer support has traditionally been accessed in-person, it is often difficult support to access for reasons such as geographical or time restraints. Barriers to accessing psychosocial peer support present challenges for individuals who may already be experiencing difficulties managing the symptoms of their burn injury. For this reason, it is necessary that online avenues of peer support are explored.

Methods: A review of the literature to identify the perceived benefits of accessing peer-informed support online by people experiencing a variety of health conditions.

Results: Existing literature suggests that online support interventions are a cost-effective and accessible way to provide psychosocial support to individuals amongst different health conditions. However, there are currently limited online avenues of peer support for people affected by burn injuries. Healthtalk (www.healthtalk.org) is an example of a freely available and accessible form of online peer-informed support featuring real-life videos of people speaking about their health experiences.

Conclusion: Though online support should not act as a substitute for face-to-face care, it can work to address the current gaps in accessing psychosocial support. Through online peer support, an individual can gain a sense of empowerment through increased knowledge which can help them to feel more confident in managing their health. Due to the complex nature of burn injuries and the interplay between physical and psychosocial health, generalised online support may not address the specific needs and challenges faced by people affected by burn injuries. It is for this reason that there must be resources available for the burns community which are specific to the experience of sustaining a burn. An ongoing study has currently interviewed 28 people affected by burn injuries, including adults, young people, and children with a burn, as well as the parents of children with burns. Participants are from across the U.K., range from age 12 – 76 years old, and their burn injuries vary in size, cause, and location. These interviews will inform the development of a burn specific Healthtalk module which will be available from October 2022. The finalised Healthtalk module will be freely accessible for burn care teams to share with their patients and colleagues alike.

To see or not to see: A case of complex multidisciplinary burn scarring eyelid surgical reconstruction.

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction

A 4-year-old child suffered catastrophic 60 % total body surface area burn injuries affecting head and neck, trunk and limbs following sulphuric acid burns. He underwent limited treatment in his country consisting of first aid and debridement and grafting in upper and lower limbs and trunk, but no treatment to the facial and ocular areas

Purpose

Describe the staged steps of oculo-plastic eyelid reconstruction of a complex case of cicatricial post-burn scarring.

Methods

He was referred for assessment and reconstruction in the United Kingdom. Even though there were widespread burn scar contractures. his most severe injuries involved both eyes and adnexal structures, with evidence of severe bilateral cicatricial ectropion and threat to vision.

He required multidisciplinary Plastic Surgery and ophthalmic complex bilateral eyelid reconstruction in two separate procedures to restore anatomical and cosmetic integrity to both eyes.

The initial procedure involved examination under anaesthesia of both eyes, release of the left upper and lower eyelids burns scar ectropion and resurfacing of the resulting defect with full thickness grafts from the left clavicular area. The grafts had full take with no evidence of infection and excellent cosmetic appearance.

A similar procedure was performed to reconstruct the right eyelids 6 weeks later. The vision of this eye was beyond salvage but the need for cosmetic eyelid symmetry was considered as an appropriate indication to proceed to reconstruction. This was found to be successful with excellent graft take and parental satisfaction.

Results

The multidisciplinary reconstructive effort led to restoration of eyelid anatomy and preservation of vision of the left eyelid with excellent patient satisfaction.

Conclusion

This case required coordination, expert holistic approach, complex surgery and extra efforts from the team to ensure compliance, communication and positive outcomes and highlights the importance of multidisciplinary team effort.

Evaluation of patient-reported outcome measures in burn-specific tools: a rapid review

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction: Patient-reported outcome measures (PROMs) are an essential pillar to delivering and evaluating patient-centred care, and their role should not be disregarded in burn patient care.

Purpose: We aim to 1. Explore biological, psychological, and social considerations that are currently listed in burn-specific PROM tools, as well as their efficacy, 2. Explore biological, psychological, and social factors that are maintained or added to newly developed/under development burn-specific PROM tools, and 3. Identify any key gaps in burn-specific PROM tools to inform future research in this area.

Methods: A search was performed of MEDLINE (Ovid), EMBASE, CINAHL, and The Cochrane Library databases. Two independent reviewers screened article titles/abstracts then the full texts. All studies were graded independently according to the Quality Rating Scheme for Studies and Other Evidences.

Results/Discussion: 552 studies were identified through our search strategy. Based on our outlined inclusion and exclusion criteria, 133 full-text studies were assessed for eligibility, leaving 22 articles to be included in our rapid review. Due to study heterogeneity, a qualitative synthesis was conducted. Existing burn-specific PROMs covered various biological, psychological, and social factors affecting burn patients, but several studies assessing burn patients required additional PROMs for a thorough evaluation. Burn-specific PROM tools under development are poised to fill this need but do not yet comprehensively cover all biological, psychological, and social elements required.

Conclusion: Burn injuries and their management are unequivocally unique and distinct, requiring specific patient considerations that are not needed in other patient populations. Further research is needed to validate existing burn-specific PROM tools and to develop comprehensive burn-specific PROM measures that effectively incorporate the bio-psycho-social model of health.

Group A Strep: a cause of life-threatening infection even in innocuous burns

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction: Group A Beta-Haemolytic Streptococcus (GAS) is a particularly virulent human specific bacterium implicated in a wide spectrum of diseases. GAS can cause erysipelas and cellulitis which may progress to necrotising fasciitis if left unchecked. Necrotising soft tissue infections (NSTIs) are a rare, potentially life-threatening complication of burn wounds resulting from a breach in the protective cutaneous barrier. We present an unusual case of severe erysipelas, secondary to GAS, following an innocuous sulphuric acid injury without skin loss in an otherwise fit and well patient.

Purpose of study:

- 1) To capture the nuances setting this case apart from the standard presentation and clinical course of infected burns.
- 2) To characterise the differentiating features of GAS NSTIs.

Methods:

- 1) Presentation of a patient with severe erysipelas secondary to GAS following chemical burns.
- 2) A literature search investigating other instances of severe soft tissue infection following chemical burns.
- 3) Literature review to summarise the differing clinical features of GAS NSTIs.

Discussion: A 43-year-old man presented with rapidly spreading, sharply defined erythema to his left wrist 3 days after a splash of sulphuric acid without an apparent cutaneous injury. Over the course of a week and despite high dose oral antibiotics, this dramatically progressed to relatively painless blistering, swelling and superficial skin necrosis associated with significantly raised inflammatory markers, but without sepsis. He was investigated with tissue cultures, biopsies and MRI scan. Systemic antibiotics were escalated in response to rapid progression of the skin changes. Following the culture of GAS from oedema fluid obtained during a negative finger sweep test, the antibiotics were rationalised to high dose Benzylpenicillin and Linezolid leading to resolution without a surgical debridement.

This is the first instance in the literature reporting erysipelas following an innocuous chemical burn. A literature review of the Medline and EMBASE databases was conducted using the search terms “cellulitis”, “erysipelas”, “streptococcal infections”, “soft tissue infections”, “chemical burns” and sulphuric acid burns”. The search strategy produced 36 papers, none of which were related to GAS in chemical burns.

Factors which differentiated the infection in question as erysipelas included (1) the clinical appearance of bright erythema, oedema, induration and superficial necrosis with a surprisingly normal range of movement and minimal pain, (2) the identification of GAS as the causative organism and (3) histological analysis showing dense inflammation and necrosis limited to the deep dermis/superficial subcutaneous tissue.

Conclusion: Due to the high virulence of GAS and its rapid progression, a high index of suspicion for necrotising soft tissue infections such as necrotising fasciitis must be held even with minor epidermal injuries. Early recognition, aggressive treatment with carefully selected broad-spectrum antibiotics and appropriate investigations are essential, followed by targeted therapy once the causative organism has been confirmed. Life or limb saving surgery must always be considered, but with accurate diagnosis radical debridement might be avoided.

Burns specific Patient Reported Experience Measures (PREM) - our Burns Unit experience in face-to-face and video conference follow-up

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Our Burns Unit treats approximately 1350 new patients (60% adults; 40% children) per annum who suffered varying degrees of burns injuries. Almost 35% of these patients require surgical intervention with inpatient care. The National Standards for the Provision and Outcomes in Adult and Paediatric Burn Care (2018) published by British Burns Association (BBA) states that all services should evaluate patients' experience of burns care. As part of the pilot project by the National PREM Working Group, we have used the Newcastle Burns PREM to evaluate our patient's experience in our units burn care. After the acute burn care, patients are followed up in our multidisciplinary Scar Clinic for on-going outpatient management. Due to the COVID-19 restrictions in the past two years, we have developed a video-conference virtual clinic for suitable patients as an alternative to face-to-face (F2F) appointments. This virtual clinic allows us to continue long term outpatient management, without having the patient physically attend the hospital and increase their risk of exposure to COVID-19.

Objectives:

To assess patient satisfaction with the service provided at our Burns Unit. To assess patient satisfaction with our new virtual Scar Clinic, compared with the traditional F2F clinic, in adult and paediatric subgroups.

Methods:

Newcastle PREM questionnaires were handed out and collected from outpatients following their acute burn injury episode. Questionnaires were collected in Scar clinics, outpatient dressing clinics or conducted over the phone with consent. Data was compiled, analysed and subgroup comparison (adult F2F, adult video, paed F2F, paed video) was conducted.

Results:

There is very positive feedback of our burns service overall. 91.2% state that they "strongly agree" or "agree" with positive statements about our service across the assessed categories. In subgroup analysis, there were no statistically significant differences between the four subgroups. This suggests that patient satisfaction in our new virtual clinics is equally good compared to F2F clinics, which is reassuring. In the free text section, there were comments from parents who actually prefer video clinics as bringing a young child to hospital can often be challenging. As a Burns Unit with a large geographical catchment area, often patients have to drive an hour or more each way to attend F2F clinics – there were comments that the virtual clinic saved traveling time and allowed them to continue work with less disruption.

Conclusion:

This patient experience evaluation revealed positive feedback towards our Burns Unit and that patients were overall very satisfied with our service. Video clinics that were developed in response to COVID-19 restrictions are equally accepted by patients and parents of paediatric patients. Patient experience in video clinics are just as satisfactory as F2F clinics and are sometimes even preferred by parents of young children who suffered burns injuries, and patients who live far from our hospital.

How the pandemic has accelerated the digital transformation of the discharge planning process.

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction

Discharges from a burns service can be complex, this is compounded by the potential numerous community agencies within the geographical area covered by the burns service that are required for a robust discharge plan.

Services have adapted their provision of care over the period of the pandemic with digital technology being at the forefront of change. Following on from the success of virtual ward rounds, multidisciplinary team meetings and patient appointments, a virtual access visit (VAV) was trialled.

Objectives

To explore the benefits and challenges from the clinicians' and patient's perspective of using virtual technology for an access visit.

Case report

45 year old male with multiple sclerosis who was previously independent with activities of daily living (ADL) and mobility was referred to the burns service for surgical management of necrotising fasciitis to bilateral hips and sacrum.

Post surgery and rehabilitation he used a self-propelling wheelchair for mobility and required assistance with ADLs.

An access visit was essential to assess manoeuvrability around the environment to promote independence with ADLs.

Methods

The patient, their family, the community and hospital occupational therapists (OTs) were asked for their experiences of the VAV. Their feedback was categorised into themes.

Findings

Communication

The VAV enabled all key individuals, who were based across the south east, to meet together allowing for immediate feedback, discussion and decision making.

Collaborative working

Unlike traditional access visits where the patient remains in the hospital the VAV enabled the patient and their family to be central to the process and lead the decision making.

Collaborating our burns expertise with the community OT's expertise to provide the best possible discharge plan for the patient. The challenge of the reliance on good links with community services was noted.

Efficiencies for the service

Savings in terms of costs and time were highlighted. The hospital OT did not need to travel the 82 miles to be present for the visit, avoiding travel costs and freeing up clinical time.

Technology

The virtual platform used was viewed as a good choice; however, potential challenges with technology were noted by all participants. With the key issues being connectivity on the patient's personal device and inability to see all participants if using a phone to connect.

Discussion

Prior to Covid 19, digital technology had many challenges in becoming standard practice in our OT service. The pandemic has accelerated the need for these challenges to be overcome. This single case study is limited in regards to the transferability and generalisability of the findings, however, the benefits identified support the need to further explore the uses of digital technology to enhance patient care and health care efficiencies.

Conclusion

Digital technology can improve efficiencies by reducing costs and clinical time in this part of the discharge process as well as enhancing the patient journey. To achieve these benefits the inexperience of clinical staff in using digital technology outside of standard practice needs to be addressed.

Big Macs and Lollipops: Optimising scar management intervention in a neck and face burn for a patient with a learning disability. An innovative case presentation demonstrating collaborative working between Occupational Therapy and Maxillofacial Prosthetists.

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

This case presentation shows the innovative treatment used by the Burns MDT in optimising patient care. The scar therapy and prevention of microstomia and neck contracture in a 52 year old female patient with learning disabilities are shown. Patient care was delivered to address the additional needs of the individual by the use of an unconventional oral splint to enhance patient adherence to treatment, leading to an optimal outcome.

Management of the acutely burnt ear: A 20-year review of incidence, treatment, and outcomes at a regional burns centre with recommendations for a protocol to reduce complications.

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Introduction

The site of the external ear makes it prone to thermal injury and its cartilaginous structure renders the pinna vulnerable to infection, scarring and deformity. Functional effects resulting from burns to the ear may be minimal. However, the need for further surgical interventions or hospital admission to manage infection can be significant for patients, as well as the psychological impact of poor cosmesis resulting from necrosis and scar formation. Ear burns often occur in the presence of larger burns involving the head and neck, together with inhalational injuries where care will be focused on improving survival. Introduction of a protocol may ensure consistent care of the burnt ear with the aim of minimising acute and long-term sequelae.

Purpose

Our study reviewed 20 years of admissions to assess the prevalence of ear burns within our centre and evaluate management and outcomes with the aim of developing a protocol within our unit to reduce associated complications.

Methods

Our International Burn Injury Database (IBID) recorded all patients admitted between 2000 and 2021. Ear burns are not specifically recorded by IBID; therefore, all patients with head and neck burns had an initial review of clinical notes to identify patients with ear burns. Analysis was then performed to assess demographics, mechanism, TBSA, depth, management, and outcome including development of infection and need for subsequent scar management, surgery or ear reconstruction. Patients where assessment of the initial ear burn was not possible due to incomplete notes were excluded from our data collection.

Results

15,712 patients were admitted over the 21-year period covered by IBID, and in this time frame 2947 had presented with burns to the head and neck. Following initial review of notes, 357 patients with ear burns were reviewed. The most common mechanism was flame burns (44.8%, n= 160). However, scalds were more common in children (79.8%). Surgical debridement was undertaken in 12% of cases during initial admission, though only 14 of these patients underwent grafting, with an average time of 20.5 days from injury to grafting (range 2-42).

On analysis 4.2% of patients (n=15) developed perichondritis and the mechanism in all but one of these cases was due to flame burns. Pseudomonas was the predominant microorganism identified in cases of infection and 12 patients returned to theatre for washout of perichondritis. 9.2% (n=33) of cases were noted to have issues at scar clinic review and management ranged from conservative advice to return to theatre for scar release or excision. We also noted, in patients with high TBSA or those requiring ICU admission, documentation of ear care and specifically time to healing was often limited.

Conclusion

As the ear represents a small percentage of the TBSA it is often overlooked in documentation and care may vary. A standardised protocol to ensure early recognition of patients at risk of developing complications; improved documentation; regular cleansing with antimicrobial solution; avoidance of pressure dressings; early debridement of eschar; and prompt recognition and treatment of infection may benefit patients with ear burns and help achieve optimal outcomes.

An Occupational Therapists process to optimise training.

Acute Burns Rehabilitation

Introduction Providing therapy within your area of expertise is as much of a professional expectation as a responsibility for Occupational Therapists. It is important to seek out professional development opportunities and dedicate time to learning in order to develop specialist skills. The question is, are these opportunities available, easily accessible and meeting the needs of practitioners and patients?

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Posters - Session 3 (P39-P51), Palm Court, May 5, 2022, 11:00 - 11:30

Purpose

The development of an e-learning programme for occupational therapists working within acute burns, aiming to improve accessibility and standardise the teaching process for those who have not practised in the area of burns rehabilitation.

Methodology

Qualitative and quantitative data collection method was completed through an online structured survey completed with the support of the quality improvement team (Boynton and Greenhalgh, 2004) who developed a system to design questionnaires as a research methodology to ensure reliability.

An online survey was provided to 74 qualified occupational therapists of which 56 responded. With the aim to identify how individuals learn and how likely they are to take part in an e-learning module. It was also important to find data on how to encourage confidence in a specialist area and the application of knowledge to clinical practice.

A literature review and analysis were completed. Research of learning styles and platforms indicating that within the medical field, healthcare and occupational therapy, that education provided to the learner via an online platform is identified as being just as effective as face-to-face teaching (Perea and Sit, 2020) (Burke and Harvesin, 2014) (Belarmino and Bahle-Lampe, 2019). Face to face teaching incurs travel time, costs, restricted attendees and a time limit. The use of an online platform allows the training to be available to more people all over the world with the option to record and rewatch the training at any time. Tomlinson et al, 2013 concurred this style of learning supports knowledge retention, the application to practice and increases accessibility and convenience for the learner.

Results

The data shows equal education over time, not a learning platform, impacts both knowledge application and confidence in clinical practice. Therefore, the evidence found no significant differences between learning platforms. It is believed the provision of quality learning experience via an e-learning platform is just as effective as historical classroom-based teaching.

These findings suggest similar education provided to occupational therapists in burns may result in improved confidence and knowledge application to clinical practice from the beginning to the end of the educational program. Online learning also increased participation and adherence rates.

Data collection indicated the occupational therapists identified as kinaesthetic learners. The learning topics identified through the quantitative and quality data collection included:

Burns types and classification

Occupational therapy assessment intervention

Wound healing

Scar management and treatment

Pain management

Conclusion

Occupational therapy provision in an acute hospital is a specialist area requiring specialist skills, knowledge, learning opportunities and teaching (BBA, 2018). Like many disciplines these specialist skills are taught by professionals with long standing careers in the area. The British Burns Association outlines the standards of physiotherapy and occupational therapy practice in the management of burn injured adults and children. The documentation outlines guidance on specific considerations for clinical decision making. These standards alongside the national burn care standards 2017 and the research described indicate the need for specialist e- learning to provide quality learning opportunities to those embarking on a road to becoming an occupational therapist within the burns sector.

Efficacy of topical anaesthesia (eutectic mixture of local anaesthetics – EMLA) for skin grafting of lower limb ulcers.

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction

Skin grafting is a commonly performed procedure done to resurface ulcers, an example of which is lower limb ulcer and this is done under anaesthesia because it is a painful procedure. General anaesthesia, spinal anaesthesia, local anaesthesia and peripheral nerve block are the mode of anaesthesia that are commonly administered for this procedure; however, they require expertise and are not without demerits. Peripheral nerve block and local anaesthesia by infiltration are both painful and the later might require infiltration of large volume of anaesthetic agents which can result in systemic toxicity. Topical anaesthesia can be an ideal replacement for these other forms of invasive anaesthesia for the purpose of skin grafting.

Purpose of study

This study aimed to assess the efficacy of topical anaesthesia (eutectic mixture of local anaesthetics- EMLA) for skin grafting of lower limb ulcers.

Methods

This study was a prospective randomized control trial of 46 patients with lower limb ulcers of up to 200cm². The intervention group had topical anaesthesia applied on both the donor and recipient sites for skin grafting procedure, while the control group had skin grafting procedure done under spinal anaesthesia. Outcome measures were pain during harvesting of skin graft, pain during recipient bed preparation, onset of post-operative pain, complication rates, graft take and patient's satisfaction rate in both the intervention and control group. Data obtained from the study was entered into the study proforma and analyzed using IBM SPSS version 26.0. Independent student t test was used to analyze continuous variables while chi square was used to analyze categorical variables. A p value of less than 0.05 was deemed statistically significant. Results were presented in tables and charts.

Results

A total of 46 patients were enrolled into this study with 23 patients in either group with a male to female ratio of 1.9:1. Post-traumatic ulcer was the commonest indication for skin grafting in both groups. All the patients that had harvesting of skin graft and recipient's bed preparation done under spinal anaesthesia experienced no pain during the procedure. In the topical anaesthesia group, during the harvest of skin graft and preparation of the recipient's bed, 87% of the patients experienced no pain, 4.3% experienced mild pain and 8.7% experienced moderate to severe pain and had another form of anaesthesia to complete their procedure. However, the patients who had topical anaesthesia experienced a longer post-operative analgesia compared to the spinal anaesthesia group. There was no complication experienced under topical anaesthesia, while spinal anaesthesia resulted in complications which included post-dural puncture headache, high spinal, urinary retention and shivering. Graft-take and patient's satisfaction rate were comparable in both groups.

Conclusion

This study demonstrated that topical anaesthesia can be used effectively for skin grafting procedures and can be a good alternative to spinal anaesthesia. The topical anaesthesia provided a longer post-operative relief of pain than spinal anaesthesia. Therefore, topical anaesthesia because of its safety and comparable efficacy should be considered for skin grafting procedures especially in patients whose general condition would not permit spinal anaesthesia.

Making burns a Teams game

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction.

Rapid and accurate burn assessment has important implications for the treatment and prognosis of acute burn injury. TBSA (total body surface area) and burn depth are commonly determined by visual inspection. However, inexperience can result in inaccurate estimation of these, delay to treatment and suboptimal treatment strategy. Hence early senior clinician review is best practice. Remote virtual assessment may expedite this and has been shown to provide similar results to face-to-face burn assessment. MS Teams is a videoconferencing and communication platform that is now widely integrated in UK healthcare and could hence be useful in the remote assessment of acute burn injury.

Purpose.

We aim to share our local experience, consider potential problems and demonstrate the feasibility and effectiveness of MS Teams in remote assessment of acute burn injury.

Methods.

Preliminary literature review was conducted. A trust-owned and network protected tablet device was provided to the Burns Doctor on-call to communicate with the Burns Consultant on-call, during inpatient admissions to the Burns Unit or consultations in the Emergency Burns Assessment Clinic (EBAC). Remote assessment of the burn injury was performed by the Consultant on-call, with patient consent. Patient survey and staff survey were completed afterwards.

Results.

Literature: Rapid implementation of remote working solutions has taken place in healthcare in response to the pandemic, including widespread use of Microsoft Teams for virtual handover and medical education for example. Specific smartphone applications and cloud-based consultation systems exist for remote burn injury assessment and emergency care but are an additional cost. Remote assessment can allow an accurate assessment of burn injury.

Staff survey: Consultants and juniors find MS Teams useful for this purpose. Junior clinicians and trainees appreciate the improved access to senior supervision and support. Feedback was that devices must be sufficiently charged and connected to the private Wi-Fi network. Burns Consultants found that senior input can take place in several consultations at once or in close succession. Feedback was that data generated from the consultation must be stored securely along with any other patient data.

Patient survey: Patients find MS Teams acceptable for this purpose. Patients prefer to be able to see the Senior member of staff on the tablet device to maintain trust in the consultation. Patients are concerned that confidentiality must be maintained.

Conclusion.

Remote consultation and assessment of acute burn injury using MS Teams appears acceptable and beneficial to both patients and staff alike. Given its increasingly widespread use in healthcare and integration within hospital infrastructure, it is readily available for this purpose. The tools required to implement are a well-charged tablet device, secure internet connectivity and robust data management protocols. MS Teams could therefore deliver cost-savings, save clinical time, and improve patient care in acute burn injury.

Folliculitis following paediatric scalp burns

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction: Scalp folliculitis following burn injury can be challenging to manage. Wounds can undergo cycles of healing, infection and breakdown with detrimental effects on the patient and their family and require regular input from the burns team at a cost to the services. Management strategies are varied and there is little evidence presented in the literature.

Purpose of study: We looked to identify cases of scalp folliculitis in paediatric burns patients treated at our unit and describe their demographic details, management strategies and outcomes. We will also share our new treatment algorithm agreed between the multi-disciplinary team.

Methods: A locally maintained burns database was searched for patients with scalp burns who were known to have developed folliculitis over the last 3 years. Their electronic records were used to gather demographic data and details about their burn injury, progress, microbiology and treatments.

Results/Discussion: 3 patients were identified with post-burn scalp folliculitis. Ages at the time of injury were 14 months, 15 months and 4 years 2 months. Injuries were all "pull down" mechanisms with 2 hot water scalds and 1 hot wax melt. 2 patients were managed as inpatients initially for 15% and 6% Estimated Total Body Surface Area burns and 1 as an outpatient for <1%. All scalp burns were mixed depth partial thickness. Treatment strategies for folliculitis included admission for IV antibiotics (x 2 episodes in 1 patient), shaving of hair, debridement of crusts and dressings as both outpatient and under General Anaesthetic (GA)(2 x episodes in 2 patients), antibiotics and antifungals (oral – 2, topical – all), topical steroids (2 patients) and emollients (all). Wound swab cultures yielded both single and mixed organisms at different time points including *Candida* species, *Staphylococcus aureus*, *Stenotrophomonas maltophilia*, *Bacillus cereus*, *Staphylococcus epidermidis*, *Clostridium perfringens*, *Pseudomonas aeruginosa* and *Enterococcus faecalis*. Various dressings were used. Time to complete healing from date of injury was 237 days, 115 days and still in progress (127 days at time of submission). Following complete healing 2 patients experienced alopecia in areas of previous folliculitis.

Conclusion: There is much variation in treatment strategies employed to treat scalp folliculitis in our unit. A greater size of affected area was more likely to incur inpatient treatments with antibiotics and procedures under GA to remove folliculitis associated crusting. Small areas of folliculitis could still incur lengthy times to heal however. Practitioner experience and preference may have influenced choice of topical treatments. Although management strategies require an individualised approach, our newly developed local guidelines may help reduce variations in practice and overwhelming or conflicting advice to families.

Single Unit Retrospective Analysis of Resuscitation Level Burns Injuries with Cyclical Improvement Goals

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction: Prompt management of major burns is crucial in achieving the best physiological, psychological and scar outcomes for patients. We reviewed 5 years of practice in a busy regional burns unit with a view to improving initial patient management.

Study Purpose: To evaluate practice over 5 years within Stoke Mandeville's Burns unit against National Standards of Burn Care to inform future practice and identify areas for improvement.

Methods: 5 years of patients with resuscitation injury were included from October 2016 to October 2021. Patients were identified from IBID data and presentation at LSEBN meetings. Data was collated from IBID, patient notes, operation notes, theatre management systems and MDT documentation.

Results: 69 patients were included over a 5-year period with 36 patients presenting over the final 2 years from 2020-2021; 29 were paediatric and 40 adults. Mean age was 28 (11 months - 92), mean TBSA of 20% (10-70%) and mean Modified Baux of 50.8 (1.99-138.88). Mean length of stay was 18.5 days for adults and 4 days for children with a mean length of stay per TBSA of 0.6 days.

Median times to acute milestones were: 6 hours to assessment from injury, 5½ hours to fluid resuscitation, 16 hours to adequate feeding regimen, and 21 hours to surgery. Paediatric patients had a median time to theatre of 16 hours. Adult patient's median time to theatre was 36 hours. All patients had fluid resuscitation within 24 hours.

There were 5 patient deaths (Modified Baux 69.6-138.8). Linear regression predicts a departmental 50% mortality at Modified Baux of 105.

Discussion: Stoke Mandeville has a streamlined paediatric major burn pathway, demonstrated by efficient times to acute management milestones. This is reflected in patient reported outcome measures and long-term quality of life. Adult burns are often deeper, with varying degrees of co-morbidities and complicating factors. Our aim remains to improve our adult resuscitation burn pathway.

This study demonstrated two key areas for improvement in the acute phase of burns management. Most adult patients were waiting more than a day for surgery. A feeding plan was also not always considered at time of resuscitation leading to delays in adequate feeding. This was reflected more in the borderline resuscitation level burns and weekend admissions but improved with our more recent, more frequent experience.

Improvement requires a multi-disciplinary focus within the burns MDT and allied specialties. Without a dedicated burns theatre, priority access to emergency theatre is one of our key goals for this patient group and requires proactive plans to expedite each patient.

Secondly, we are revising our out-of-hours feeding regime to prompt earlier commencement of nasogastric feeding when needed, ensuring that initial assessment and consultant review of all burns includes a documented feeding plan. We have devised a unified burns intensive care admission template including both IBID and internal audit data and this will become part of our annual departmental review. The second phase of this study will include quality of life and scar outcomes for all our resuscitation level burns.

Clinical Evaluation of Curea P1 & P2 for the management of burn wound exudate

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction

Wound healing is a dynamic process and although wound exudation is a visual manifestation of the inflammatory response (Bishop et al, 2003), the volume of exudate produced together with its consistency and chemical composition can vary considerably between patients and over time. In burn wounds, the time of highest exudate is in the major burn receiving resuscitation fluids, but even in more minor burns, lower legs and hand burns can have heavy exudate coupled with oedema. In addition, infection often brings significant increases in exudate levels (WUWHS 2019).

Purpose

The purpose was to clinically evaluate the effectiveness of Curea P1 and P2 as a means of managing burn wound exudate. Curea consists of a patented cellulose-based SuperCore® which gives increased absorption capacity, highly permeable polypropylene-woven wound contact layer and a vapour permeable and waterproof backing. Curea P2 has a non-adherent wound contact layer.

Method

This evaluation involved 2 burn services, Manchester and London. 13 patients were evaluated with a range of burn depths (Table.1). This was an open labelled, non-comparative Clinical In-market Evaluation (CIME) and the following data was collected: wound progression, exudate management, peri wound skin condition, pain, frequency of dressing changes and dressing performance using a 10-point LIKERT Scale. Additionally, both patient and staff feedback were collated.

Results/Discussion

The overall results demonstrate the following in relation to the dressing (Results Chart):

The dressing performed well overall, in relation to exudate management and protecting peri-wound skin from maceration. Where it did not perform as well, was in comfortability and ease of removal. This may be related to anatomical area being dressed, like all superabsorbent dressings the dressings are slightly more rigid. The two patients this applied to, had burns to their feet and arms, which may have made the conformability more difficult. 2 patients had issues with the wound being too dry and the dressing sticking. However, with any new product, staff need to get used to a product and how absorbent it is.

Conclusion

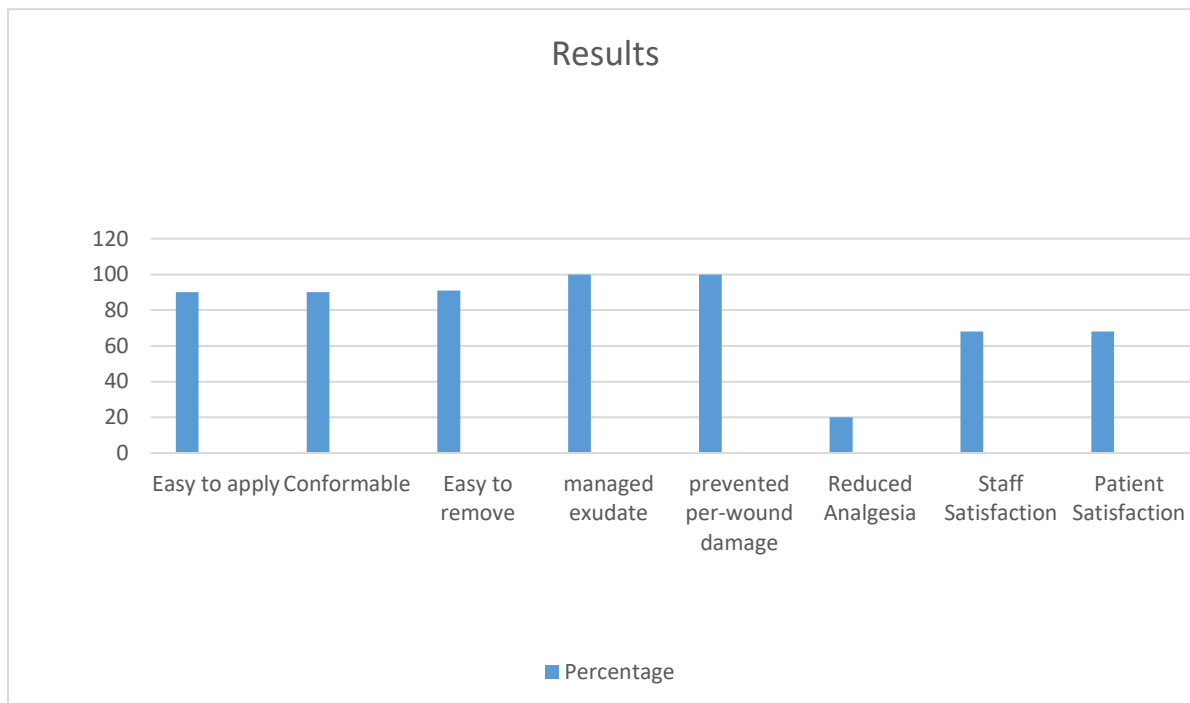
This is part of an ongoing evaluation, but early results are encouraging and the ability of the dressing to manage exudate and prevent peri-wound damage is so far excellent. Patient selection is important and it's interesting that the patients that had the issue with the dressing sticking were patients 1&2 and later patients did not have a problem as experience was increased. Management of burn wound exudate raises a challenge and exudate that soils patients' dressings or clothing is distressing

References

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Table 1

Age	Sex	Mechanism	Depth*
25- 87yrs Mean: 53.3yrs	M/F Ratio 8:5	Scald: 8 Sunburn: 1 Contact: 1 Flame: 3	Superficial Epidermal: 3 Superficial Dermal: 8 Deep Dermal: 5 Full Thickness: 0 *NB some patients had more than one depth/area of burn



Clinical Evaluation of Alprep® pad: Wound cleansing and debridement tool used in burn wound management.

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction

One of the basic principles in wound care management is wound cleansing accompanied by wound bed preparation, which forms an essential part of the wound healing process. Additionally, it promotes wound bed visualisation leading to accurate assessment and diagnosis.

There are several wound cleansing and debridement methods to get rid of wound debris, which can include pseudo eschar, devitalised slough, necrotic tissue, and biofilms (Anghel et al, 2016). Clinically, complete removal of biofilms is one big hurdle in treating wounds, as biofilm identification and detection can be challenging. Acute wounds often proceed to becoming chronic due to persistent infection and become resistant to antibiotics and the hosts immune system (Bjarnsholt, 2013). It is vital to use appropriate debridement techniques/ aids in reducing the formation of biofilms. Thus, reducing the risk of infection and promoting timely wound healing and positive patient outcomes (Wounds UK, 2013).

Purpose

The Alprep® pad is a 2-in-1 tool with a dark grey foam on one side, for cleansing and light grey foam on the other for debriding and absorbing, thus facilitating optimal wound preparation at every dressing change. Its ergonomic shape provides comfort, control, and ease of use.

The Alprep® pad aimed to physically cleanse both acute and chronic burn wounds and debride slough, biofilms along with removal of hyperkeratosis and pseudo eschar.

Method

Total of 12 patient reviews (with a mean age of 58.5 and male to female ratio of 5:7) with burn wounds (8 acute and 4 chronic burn wounds) of various aetiologies and with difficult to debride areas were treated with Alprep® pad. Assessment comprised of general performance and efficacy, pain scores, ease of use, convenience, safety, and time taken. The debridement potential and suitability compared to our standard method to debride were noted. Staff and patient comfort and experience were also noted.

Results/Discussion

Key findings suggest it was easy and convenient to use with no concerns of harm from usage. It appeared to remove Flamazine eschar well and most wounds appeared to debride better than with the usual debridement pad. One patient was treated in theatre to remove friable hyper granulation tissue, which was very effective at establishing a good bleeding bed for grafting. However, there appeared to be mixed feedback on its effective and gentle cleansing features. One patient with hyperkeratosis was treated but it did not remove the hyperkeratosis and staff and patient feedback recognised an increase in discomfort and pain scores during debridement. This was seen even on using the gentle side of the pad and appeared to be an issue in all cases, more so in new burns. However, some patients were able to be treated 2-3 times with good debriding effect.

Conclusion

The main findings demonstrated Alprep® pad to have a promising debridement potential in burn wounds. However, there needs to be a pain protocol developed for its use. Both oral and topical analgesia prior to each visit would address this issue. Given its effectiveness in debriding against the usual pad, it is essential we deal with the pain issue to ensure we can use this tool effectively.

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The use of Oxandrolone to treat moderate to severe burns: a regional burns unit experience

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction

Patients with moderate to severe burns are induced into a profound hypermetabolic state leading to catabolism of healthy muscle tissue. This is associated with delay of wound healing, prolonged hospital admission, organ dysfunction, and mortality. Oxandrolone, a synthetic testosterone analogue, has been demonstrated within the literature to be beneficial in modifying this process and subsequently improving patient outcomes. There has been conflicting evidence within the literature that Oxandrolone use can result in liver dysfunction and transaminitis. Oxandrolone use in burns centres varies across health trust around the UK.

Purpose

We aim to report the results of Oxandrolone use in a regional burns centre.

Methods

We analysed data of patients with severe burns admitted to our regional burns unit. All patients receiving Oxandrolone was included in the study, with no exclusions. 1 patient was lost to follow up due to repatriation to another health trust after commencing Oxandrolone. Data was analysed retrospectively over a 13 month period, from 08/2020 to 09/2021. All burns were sustained via a thermal mechanism. We analysed patient outcomes, duration of treatment and doses used.

Results

Patients were aged between 16-65. Total body surface area (TBSA) ranged from 16-93%. There were 3 patients with TBSA <25%: 16%, 18% and 24%. 10 out of 11 patients were adult (>18 years), there was 1 paediatric patient. All adult patients were commenced at a dose of 10 mg b.d. Paediatric patients were commenced at 1.25 mg b.d. 1 out of 11 patients had a reduction in dose from 10 mg to 5 mg. This was due to nausea after 1 week of Oxandrolone therapy. Liver function tests became deranged in 4 cases, but settled despite continuing Oxandrolone therapy. 4 patients were commenced on Oxandrolone >14 days after sustaining injury, with the remaining starting within 14 days of sustaining the injury. There was 3 deaths during the study period. Oxandrolone therapy is ongoing in 5 cases. 3 patients had Oxandrolone discontinued after 6-8 months of therapy due to an improvement of symptoms.

Conclusion

Our results show that Oxandrolone was well tolerated and can be used safely in the context of moderate to severe burns trauma. There were 3 deaths during this time period, which were not thought to be related to Oxandrolone use, but rather the severity of trauma. Oxandrolone did not have to be discontinued in any case due to adverse side effects. There was a single dose reduction in 1 patient, from 10 mg to 5 mg b.d. due to nausea. This settled post dose reduction. Liver function tests became deranged in 4 cases, however this settled despite ongoing Oxandrolone therapy. In the context of burns trauma, this derangement is likely multifactorial in nature. Systematic reviews support this and found that there is no overall increased risk of transaminitis compared to standard therapy. Although Oxandrolone is expensive, it is widely reported to decrease hospitalisation, rehabilitation and the need for further operations, outweighing the financial cost of its use.

Retrospective Service Evaluation and Study of Outcomes for Patients Using The Katie Piper Foundation (KPF) Rehabilitation Service

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction:

The KPF burn & scar residential rehabilitation centre started operating in Q1 2019. A tele-rehabilitation service was introduced in Q1 2020, driven by Covid-19 restrictions. KPF services are for UK adults who have had a burn injury, or an injury resulting in significant scarring.

A tailored inpatient programme of specialist scar management, physiotherapy, psychosocial & peer support, goal-focused activities and wellbeing therapies is designed with input from patients & their burns service/GP, complementing NHS services.

Tele-rehabilitation is remote provision via video/telephone call of (a) continuity/follow-up for former residential patients in the form of psychosocial & physiotherapy support (b) assessments, rehabilitation plans and delivery for new patients of psychological support & counselling, supervision & advice regarding dressings, infection & scar management, physiotherapy, exercises & wellbeing techniques.

Objectives:

The aim was to assess objective outcomes from the first cohort of patients using the residential and remote services via a protocol-driven retrospective service evaluation, feeding back into services.

Methods:

Data gathered by mixed methods from Q1 2019 to Q1 2021 were analysed. Changes in PRO scale scores were assessed against MCID benchmarks. The combination of qualitative and quantitative approaches gives a full picture of patient experience and outcomes for both residential and tele-rehabilitation.

Objective measures included:

- POSAS physical scar scale
- Brisbane Burn Scar Impact Profile
- CARE Burns Scale
- EQ5D Your Health Today 0-100 scale
- Patient service evaluation questionnaires, coded
- Other patient feedback, coded

Results:

During the study period, 16 patients received residential rehabilitation for a mean duration of 3 weeks. 14 patients received a mean of 50 hours' tele-rehabilitation, usually one-hour sessions.

Patients reported significant improvement in QoL, stability and independence. 100% of patients reported improvement in overall health within a few weeks. All measures showed clinically significant improvements.

Highlights:

- 23% improvement in overall QoL
- 22% reduction in scar pain; 21% less itching
- 24% improvement in appearance of scars
- 22% reduction in burns & scars impact on work & daily tasks
- 22% improvement in ability to complete everyday activities
- 70-100% higher improvement in key outcomes for patients targeting mental health & wellbeing goals
- 27% improvement in mood across all patients

Discussion/Conclusion:

This study describes the KPF approach to complementing NHS burns rehabilitation and presents detailed objective outcomes. It also reflects on challenges of running the service and potential areas for development.

Outcomes for both types of KPF rehabilitation service are very strong and reinforce service users' positive comments, showing the benefits to survivors of severe burns and scar-related trauma.

Learning points included the value of tele-rehabilitation and the need to continue to offer and develop that service; the potential for offering a blended model with focus on remote rehabilitation and assessment of the best form and duration of residential rehabilitation; the need to provide rapid post-acute support.

The role of artificial intelligence in burns care and management

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction: Artificial Intelligence (AI) offers the possibility of complementing clinical decision making in burns care and potentially provide answers to clinical dilemmas.

Aim: The aim of this study is to present the current role of AI in burns management and care and discuss its future role in treating the burns patient.

Methods: An electronic literature search was performed across PubMed, EMBASE and the Cochrane Central Register for Controlled Trials (CENTRAL) from 2015 to present. Data was analysed based on predefined fields.

Results: 20 observational studies met the inclusion criteria. 10 studies examined the role of AI in burn diagnosis, 9 studies focused on prediction of different outcomes relevant to burns care and 1 study focused on burn surgery and assessment of burnt skin for surgical debridement. Almost all studies demonstrated benefit in terms of accuracy of the use of the machine learning (ML) algorithm, compared to traditional statistical techniques. Multiple areas of burns management and care that can benefit from AI application are identified and discussed.

Conclusion: AI could be an effective complimentary tool in the hands of any burns multi-disciplinary team. This study has presented the current role of AI in burns care, its future potential, and ethical dimensions. Plastic Surgery must embrace this new technology to create a future with better outcomes following burn injury.

An audit of ward-level pain management at a regional burn centre. Is the National standard adequate?

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction:

Burn injuries and their management are very painful. Pain itself is a complex perception which is influenced by genetic, developmental, familial, social, psychological and cultural factors. Burn pain management is complex as several different types of pain occur concurrently. Types of pain experienced by burn patients include acute pain from the injury itself, background pain, breakthrough pain and procedural pain. To achieve good pain control, pain must be frequently assessed with a validated tool and analgesia tailored to individual patients' needs.

Purpose of study: 1) To audit pain management practice at ward level against set national standards 2) To gauge the adequacy of that standard. (3) To assess the true effectiveness of pain management at our centre and make improvements to our pain management SOPs (standard operating procedure) accordingly.

Methods:

A retrospective review was carried out using the IBID database. Patients with $\geq 1\%$ TBSA admitted between 11/20 and 04/21 were included. Datapoints included: demographics, mechanism, burn depth, psychiatric comorbidity, pain scores, and medications administered within 72 hours of admission. The only available standard in the UK to audit against is NHS Key Performance Indicator BRN04-A: 'Proportion of inpatients receiving daily pain assessment using a validated tool'.

Our study also evaluated any correlation between pain and TBSA, burn depth, mechanism, gender and psychiatric comorbidities.

Results/ Discussion:

65 patients met inclusion criteria. The M:F ratio was 27:14, mean age=48.5 years. TBSA was 1%- 17% with a mean of 3.81%. The commonest mechanism for burns was scald 32%, then flame 29%. Most burns were mixed depth (44%) or partial thickness (37%).

Numerical Rating Pain Scale (NRPS) is the validated scale we use for pain assessment. We found that pain scores were generally assessed and recorded at predetermined times. Higher pain scores were observed with chemical burns, deep dermal burns, female patients and patients with psychiatric comorbidities.

Oral medications were the most frequently prescribed medication. However, Oramorph was not prescribed as often as potentially indicated. Inhalational agents used were limited to Entonox whilst Pentrox, intravenous and transdermal medications were not used at all. Pentrox usage was limited by its absence on EPMA.

Conclusions:

Our pain management is fully compliant with the only UK standard (Key Performance Indicator) but this standard is too low and did not reflect on a range of areas where we need to improve. Our pain management protocols including timing of assessment and intervention would benefit from being better attuned to the needs of our patients: for instance assessment of pain did not coincide with painful interventions or surgery. Subsequent dialogue across the burn MDT including the pain team is underway to develop a multimodal approach to pain management and an updated pain SOP. We are aiming for a more pre-emptive and pro-active approach to pain assessment and thus pain management. Future inclusion of psychological and ancillary techniques, including virtual reality are also being explored, and we are keen to establish a new standard

The Introduction of a Comprehensive Sedation Pathway for the Management of Paediatric Burns Dressing Changes.

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction

Dressing changes in burn patients have the potential to be painful and stressful events, that can negatively affect wound healing. To manage this situation, general anaesthesia is often required.

To optimise the experience for both child and parents and reduce the number of general anaesthetics needed, an improved sedation pathway for the management of burns dressing has been implemented. This included the introduction of drugs such as Dexmedetomidine - known for its sedative and analgesic effects without respiratory depression. It is a safe adjuvant to procedural sedation in a ward environment. This will in time provide a protocolised way to bridge the gap between theatre and ward-based burn dressing management.

Methods

Following evaluation of previous standard practice and barriers to change, the pain, anaesthetic and burns teams have introduced a new sedation pathway involving nurse- led oral sedation alongside intranasal dexmedetomidine or fentanyl. This is in contrast to the anaesthetic team -led intravenous sedation protocol used in our adult service. Following a series of teaching sessions, immediate available anaesthetic support at each dressing change, a new optimised sedation protocol has been introduced whilst ensuring safety. Following each dressing change using the sedation protocol an evaluation form was completed, including pain and sedation scores. Evaluation was completed by the health care professionals involved, parents and children.

Results

With introduction of the sedation pathway, time was spent embedding the use of most efficacious doses of simple oral analgesia plus oral morphine/ midazolam adhering to age-appropriate guidelines. Once this was established the use of intranasal Dexmedetomidine (2-4mcg/kg) and intra nasal Fentanyl (1.5mcg/kg) were introduced when appropriate for breakthrough analgesic or sedative needs.

Initial findings are that sedation scores of 3- 5/5 and pain scores of 0 can be achieved when administering intranasal Dexmedetomidine with Paracetamol and Morphine. However, this is dependent on other influencing factors such as the environment, the mindset of the child, % of burn and the stage of healing. In less complex dressing changes, pain and anxiety is considerably reduced by administering maximum doses of oral morphine and midazolam.

There have been challenges faced whilst encouraging this change in practice, although those that have experienced its full benefit are advocating its use and are encouraging others. The parents and patients that have had a good experience are extremely grateful and would recommend it to others. Even the parents of children who still required general anaesthesia appreciated there was an alternative medication to try prior to theatre.

Intranasal Dexmedetomidine has shown to be a safe agent to use on a ward environment.

Discussion and Conclusion

A combination of pharmacological and non-pharmacological techniques need to be put in place to optimise the journey of these patients. Bringing in new ways to reduce pain and anxiety in paediatric burns dressing changes not only benefits the patients and parents but can also reduce the need for a general anaesthetic, thus having huge cost saving implications. It's for these reasons that it is vital the new sedation protocol is used to its full potential.

Ultrasound investigation in burn patients: overcoming the barriers of wounds, dressings and infection control

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction: Patients with burns often require ultrasound imaging to assess vascular structures, abdominal viscera or other soft tissue injuries as well as for pre-operative anaesthetic assessment or postoperative diagnostic tests. Requests are frequently beset by difficulties due to open wounds, bulky dressings, concerns regarding infection and apprehension to undertake scans through burns, wounds or eschar. Consequently, there is the potential for patients to receive suboptimal or delayed investigations or treatment.

Purpose of study:

- 1) To outline the challenges encountered during ultrasound scanning of burn patients and propose suitable means of surmounting them.
- 2) To develop a Standard Operating Procedure (SOP) document, viable for instigation in our Burn Centre.

Methods: A literature review was performed to identify pre-existing protocols for the use of ultrasound scans in burns. Data collected concerning every ultrasound request within our Burn Centre over the last 10 years was analysed to identify the most frequent indications. A multidisciplinary approach was then taken involving collaboration between radiographers, microbiologists and the burns team to identify barriers to ultrasound, and suggest ways to overcome them.

Results: The most frequently requested ultrasound was suspected thrombus investigation (23%), followed by abdominal (20%) and renal tract ultrasounds (17%). The identified barriers included dressings, infection risk, need for isolation of patients, and pain. Proposed methods to overcome these barriers included timing interventions with changes of dressing, the use of cling film in tandem with sterile probe covers to prevent cross contamination, procedural analgesia, and portable ultrasonography. Education and reassurance of sonographers is key, and the development of written material through an SOP has been a major step to facilitate these investigations.

Conclusion: Through a collaborative approach, a practical and relevant SOP was developed for use in our Burn Centre, which could be easily replicated elsewhere.

Chemical burns and the use of high-strength topical lidocaine cream in tattooing - A case report

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Topical anaesthetics have long been used for their ease of use and short duration to provide local anaesthetic prior to procedures such as cannulation and tattooing.

We present the case of a 26-year-old tattoo artist sustaining a chemical burn and resulting infection from a high-strength topical lidocaine cream. Our aim is to raise awareness of unregulated topical anaesthetic agents, their use in the public domain and potentially dangerous consequences.

The patient presented to the emergency department 5-days following application of the cream. The topical preparation was sourced online, came in a nondescript white tube, and was marketed as having a 50% lidocaine content with no information regarding its constitution. For comparison, EMLA cream (lidocaine/prilocaine) commonly used in hospitals, is a 5% preparation. Following application, the patient proceeded to self-tattoo his left lower leg, in a 'blackout' style.

On presentation, a 2.5% TBSA area was blistered, with areas of denuded skin, in keeping with a deep dermal burn. Much of the lower leg was actively discharging yellow-stained serous fluid. In addition, there was tracking erythema around the demarcated area, and the left foot was grossly oedematous. Blood tests revealed CRP of 103 and WCC of 11.4.

The patient was commenced on intravenous flucloxacillin. Wound swab results showed significant growth of *Pseudomonas aeruginosa*. Following stepdown to oral antibiotics and careful wound management with dressings such as Flaminal and then honey-based dressings, the patient made a full recovery, avoiding the requirement for surgical intervention.

This case highlights the difficulty when assessing burns in heavily tattooed skin. Additionally, unregulated topical anaesthetics must be avoided by the public, due to infection risk and unknown ingredients.

Full-thickness burns caused by cyanoacrylate nail adhesive in paediatric patients - A case series

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Cyanoacrylate glue, often found in acrylic nail kits, reacts in an aggressive exothermic reaction with cotton fabric. These potentially dangerous adhesives are freely available and there remains little understanding about the consequences on contact with cotton.

We present two paediatric cases of thermal burns related to the use of cyanoacrylate glue, both seen after the application of acrylic false nails, with an aim to increase awareness of this potentially dangerous adhesive.

The first patient is a 14-year-old girl, who presented with a 0.25% TBSA full thickness burn to the left heel, after she spilt some of nail glue onto her sock. The burn wound was initially dressed in Flamazine, but later required a formal debridement and split thickness skin graft (SSG).

The second patient is a 11-year-old girl, who presented with a 0.1% TBSA full thickness burn to the dorsal right foot, after applying false nails and again spilling the glue onto her sock. Immediate first aid with cold water was used. This patient was first managed in a local hospital before being referred to the burns unit due to worsening pain. The wound was dressed in Acticoat, due to a sloughy appearance, and then underwent formal debridement and SSG.

Cyanoacrylate burns are caused by a thermal reaction rather than chemical as most may believe. In both cases described, cotton is likely to have acted as a catalyst, which is consistent with published literature. Warnings on packaging to increase awareness of potential reactions should be mandatory, as well as childproof packaging to help deter the unsupervised use of such adhesives.

Sequential rectal swabs to screen for multi-drug resistant organism and carbapenem-resistant organisms: Is it really necessary?

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction:

Carbapenem Resistant Organisms (CROs) are an extreme form of multi-drug resistant organisms (MDRO) and are resistant to almost all available antimicrobial agents. Patients colonised with CROs may be asymptomatic but there is a risk of transmission to more vulnerable patients. In our trust patients are deemed to be at risk of carrying CROs if they have had an admission to another hospital within London or abroad in the last 12 months. At risk patients need to undergo isolation and screening for MDROs via three sequential rectal swabs taken at admission, T+12 and T+24.

Purpose of the study – To assess the need for second and third consecutive rectal swabs looking for CRO if the first swab has returned a negative result.

Methods : The microbiology database ICNet was searched for all rectal swabs taken to detect MDRO in patients under the care of the burns team. Data was available from April 2016 until January 2022. The clinical notes of patients who had positive swabs were reviewed and demographics recorded including; injury, country where injury occurred, local admissions at other hospitals, organisms grown and presence of CRO.

Results. A total of 788 rectal swab results taken from 351 adult patients were available on ICNet over the study period. Organisms of interest were isolated in 28 (7.9%) patients. Records were reviewed for all patients on however information could only be found for 26 patients. Bacteria with high levels of resistance were grown in samples from 17 (4.8%) patients but only 4 (1.1%) patients were positive for CROs. In these four patients, three of the patients had injuries and initial treatment abroad.

Patients with relevant growth were reviewed to assess the earliest swab to give a positive result. The first swab was positive in 20 out of 26 patients (76.9%), the second swab was the earliest in 3(11.5%) and 2(7.7%) did not have a result until the third swab; one of whom was CRO positive. One patient out of 26 did not show evidence of infection until the 4th swab.

A total of 189 swab results were available for 85 paediatric patients. Four paediatric patients (4.7%) had positive rectal swabs. E.Coli was isolated in all of the affected children, three of which were multi-resistant strains but only 2 were CRO positive showing either expression of carbapenemase or the NDM resistance gene. All four of the children returned a positive first swab.

Discussion

Antibiotic resistance is an increasing concern to human health and it is the role of all health professionals to be mindful of the appropriate use of antimicrobials through stewardship and education of patients. From the results above only 1% of patients had CROs and 5% resistant bacteria however we have expect these proportions to rise over the coming years. Screening is important to ensure that appropriate isolation can be carried out to prevent transmission to other patients and staff. This does however put pressures on bed spaces and so screening needs to be carried out efficiently.

Venous thromboembolism in major burns: developing a new prophylaxis protocol.

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction

Venous thromboembolism (VTE) is a common complication and a major cause of morbidity and mortality in patients with major burns. Standard dosing of prophylactic low molecular weight heparin (LMWH) has been shown to be subtherapeutic in major burns patients, likely secondary to altered pharmacokinetics. Recent studies have shown patients with major burns have low plasma anti-factor Xa levels with administering of standard prophylactic doses of LMWH, indicating subtherapeutic dosing.

Purpose of the study

The purpose of this study was to quantify the incidence of VTE in adults with major burns in our burns centre and develop a VTE prophylaxis protocol aiming to reduce VTE rates.

Methods

Data was collected for adult patients admitted to our unit with major burns (greater than 15% total body surface area (TBSA)) between January 2016-2021. Patient age, TBSA and incidence of VTE were recorded. A literature review was performed using Pubmed and Embase to inform the design of an enhanced VTE protocol.

Results/Discussion

Seventy-four adult patients were admitted with burn injury greater than 15% TBSA between January 2016-2021. The average TBSA was 33.0%. Nine (12.2%) patients developed VTE during their admission. Within this group there were 3 pulmonary embolism (PE) and 4 deep vein thrombosis (DVT) and 2 line-associated events. An enhanced VTE prophylaxis protocol was subsequently developed which recommended all adults with major burns (>15%) should receive twice daily prophylactic LMWH (dose dependent on weight), and should undergo measurement of anti-factor Xa levels 3-4 hours after the third dose of LMWH. Patients with sub-prophylactic anti-factor Xa levels (<0.2U/mL) should be discussed with haematology with a view to increasing LMWH dose. Patients in range (0.2-0.4U/mL) would continue on the same dose and those above prophylactic levels (>0.4U/mL) would have a dose reduction. Once in range, anti-factor Xa levels should be repeated weekly.

Conclusion

The risk of VTE in major burns patients is significant at 12.2% and is associated with significant morbidity and mortality. We have developed a new protocol that aims to tailor LMWH dose to the patient to achieve prophylactic levels and prevent VTE. Compliance to the protocol and VTE rates are currently being audited and we aim to publish the results.

Ulnar nerve compression at the elbow secondary to burn-related heterotopic ossification – a case report and literature review of management options

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction:

Heterotopic ossification (HO) is a poorly-understood pathological process which can complicate the management of burns. It involves the deposition of lamellar bone around joints and in soft tissues resulting in debilitating pain, decreased range of motion (ROM), loss of function, increased length of hospital stay and, rarely, nerve entrapment. HO is a relatively rare occurrence affecting 0.2-4% of burn patients. The most commonly-affected sites are the elbows, with other joints including shoulders, hips and knees affected to a lesser extent. There is no consensus regarding the management and timing of treatment. We describe a rare case of an ulnar nerve entrapment at the elbow secondary to HO following a burn injury, and its treatment.

Purpose of study: 1) To outline our surgical strategy which resulted in successful treatment 2) To synthesise evidence from the literature on treatment approaches for HO following acute burns, in particular rare instances of nerve entrapment.

Discussion

A 37-year-old man was admitted to Intensive Care following 37% flame burns to the face, neck, bilateral upper limbs and thighs with associated inhalation injury. He required escharotomies to bilateral upper limbs immediately after admission and ultimately had debridement and skin grafting. During the patient's extensive rehabilitation, approximately a month after his injury, he developed paraesthesia in the ulnar nerve distribution as well as reduced ROM in his left elbow. Radiology revealed an area of HO abutting the left trochlea. Nerve Conduction Studies and Electromyography confirmed ulnar nerve compression at the elbow.

The patient underwent further surgery and had neurolysis, anterior transposition of the ulnar nerve at the elbow as well as decompression of Guyon's canal. He also received adjuvant pharmacotherapy with the bisphosphonate Pamidronate Disodium and NSAIDs. Post-operative recovery was uneventful and the patient reported return of full Ulnar nerve function and full ROM at the elbow at one year follow up.

All the available literature identifies the severity of initial injury as a major risk factor associated with HO; including large TBSA, deep burns, Intensive care stay, increased time to wound closure/ grafting, inhalation injury and mechanical ventilation. Treatment modalities outlined in the literature include physiotherapy, pharmacotherapy, surgery and radiotherapy and surgical outcomes are variable at best. There is relatively little in the literature regarding nerve entrapment relating to HO, and our experience demonstrates a positive outcome from early surgery.

Conclusions:

Experience of nerve entrapment related to HO is not readily found in the burns literature. Our early surgical approach to HO-related nerve entrapment, along with adjuvant pharmacotherapy and aggressive physiotherapy resulted in a good outcome with no signs of recurrence after 1 year. More research is needed to understand the pathophysiology of the disease process and to guide prevention and management of HO. In the meantime, we recommend managing neurologically symptomatic patients with a multidisciplinary approach and advocate early surgical intervention, adjuvant treatment with bisphosphonates and NSAIDs, as surgery may have better outcomes for nerve entrapment.

Management and outcomes of purpura fulminans in a regional burns centre

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Introduction:

Purpura fulminans is a severe and life-threatening complication of sepsis and can result in significant skin loss. These patients may require management in a specialist burns service for ongoing medical care and definitive soft tissue management. These patients have a multitude of complex medical and wound management needs and are best managed in a critical care setting.

Purpose of study:

The purpose of this study was to investigate how patients with purpura fulminans were managed in the regional burns centre.

Methods:

A retrospective analysis of all patients admitted to our regional burns service between March 2009 and January 2021 with medical skin loss as a result of purpura fulminans. Data were collected on patient demographics, treatment of sepsis, size and site of skin loss, time from initial presentation to definitive soft tissue coverage, surgical procedures performed, the timing of surgical intervention, and length of stay in intensive care and regional burns unit.

Results:

Ten patients (3 males, 7 females, median age 31.8 years, range 1.5-54.7 years, median BMI 20.8, range 13.4-29.4) were admitted to our unit between April 2009 and January 2021. Nine patients were admitted directly to the burns intensive care unit (median admission 31 days, range 4-74 days).

Median skin loss was 12% total body surface area (range 5-80%). The causative organism was Meningococcus in 5 patients, Streptococcus in 4 patients and Staphylococcus in 1 patient.

Nine patients were admitted to burns ITU intubated and ventilated for a median of 24 days (6-42 days).

Eight patients required cardiovascular support, 7 patients required haemofiltration and 1 patient required plasmapheresis while admitted to burns intensive care.

The median time from initial admission to admission to burns centre was 20 days (range 5-43 days). The total length of admission (onset of sepsis in referral centre to final discharge from burns centre) was median 96.5 days (range 32-124 days).

Eight patients underwent initial reconstruction with allograft before definitive skin coverage. The median time between allograft to definitive skin coverage was 8.5 days (range 7-35 days). Seven patients were reconstructed with split skin autograft and 1 patient was reconstructed with a local skin flap. Eight patients required amputations of one or more limbs (3 patients had bilateral below-knee amputations (BKA), 1 patient had bilateral above-knee amputations (AKA), 1 patient had a unilateral BKA and 1 patient had a unilateral AKA, 2 patients had amputation of some or all of their toes).

All patients survived to discharge from the burns centre.

Conclusions:

Patients with purpura fulminans have complex medical and wound management needs and are similar to major burns patients and are best managed in a regional burns centre with specialised services. Initial soft tissue coverage with allograft is a useful method to optimise the wound bed before definitive soft tissue coverage. This improves skin graft take and minimises donor site morbidity.

Number of operative treatments required to manage foot burns in the co-morbid patient.

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Posters - Session 4 (P52-P71), Palm Court, May 5, 2022, 13:15 - 14:00

Introduction: Burns to the foot and ankle often present a challenge to manage as despite representing only a small percentage of body area, they play an important role in an individual's function, and their role in weight bearing means any injury requires a significant period of reduced mobility (1). There is therefore significant interest in optimisation of management of these burns.

Purpose of the study : To review the need for operative management of foot burns in a regional burns centre over a 1 year period, and assess the number of operations that co-morbid patients underwent compared to fit and well patients with foot and ankle burns.

Methods : Theatre and clinic lists from Jan-Dec 2021 were reviewed. All adult cases that involved burns to the foot and/or ankle were included in the study and patient records reviewed. Data including mechanism of burn, % Total Body Surface Area (%TBSA), number of procedures, past medical history, and general demographics were included. If a patient had diabetes, vascular disease or other co-morbidity that was thought to impact on burns healing then the results of disease-specific investigations such as vascular imaging or HbA1c etc were included. Other debridement therapies were also recorded. If patients had burns affecting areas of the body beyond the ankle, operations were included if treatment to the foot/ankle was documented on operation note. Significance of difference was evaluated using student t-test.

Results: 51 patients underwent at least 1 operative procedure in the study period. 2 patients had to be excluded due to missing parameters, leaving 49 patient's data for analysis. Basic demographics for patients undergoing surgery can be seen in Table 1. The most common burn mechanism was contact, followed by scald (Table 2). The most common co-morbidity in patients in our study was diabetes mellitus (DM) (Table 3).

The mean number of operations required for management in patients with 1 or more co-morbidities was 2.42, compared to 1.65 in patients without co-morbidity, which was significant on t-test ($p=0.038$). 2 patients underwent amputation of at least 1 toe in the non co-morbid group compared to 8 in the co-morbid group. Of patients who were either known to have PAD or underwent imaging which subsequently showed PAD, 100% of patients required amputation of 1 or more digits to achieve a healing wound at 1 month post operation.

Conclusion: Patients with co-morbidity required significantly more operations to achieve healing, and were more likely to undergo amputation. The most common co-morbidity seen in patients was DM, potentially due to its association with peripheral neuropathy. Based on this study, we suggest that there may be a role for routine screening of operative burn patients for diabetes, and in selected patients for peripheral arterial disease (PAD). This study also supports the need for a multi-disciplinary approach to these co-morbid patients, with input from endocrine and vascular teams. Further research is needed to assimilate whether there is a role for more radical debridement strategy in co-morbid patients, particularly those with PAD or DM.

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Table 1 - demographics of patients undergoing surgery for foot & ankle burns

Mean % TBSA	
All Patients	2.32
Co-Morbid Patients	1.65
Non Co-Morbid Patients	3.07
Location of Burn	No. of patients
Single foot	40
Bilateral	9

Table 2 - Mechanism of burn injury in patients undergoing surgery

Mechanism of burn in operative patients	No. of patients	% of patients
Contact	24	49.0%
Scald	16	32.7%
Chemical	4	8.2%
Flame	4	8.2%
Electrical	1	2.0%
Total	49	

Table 3 - Distribution of co-morbidities amongst patients undergoing surgery

Co-Morbidity	No. of patients
Diabetes	17
Ischaemic Heart Disease	5
Peripheral Arterial Disease	5
CKD	5
Other co-morbidity	7
TOTAL patients with one or more co-morbidity	26

Extravasation injuries: literature review and a 5-year audit of injuries treated at a regional burns centre

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Background

Extravasation injuries are the unintentional leakage of IV fluid or drugs into the surrounding extravascular space. This is a devastating iatrogenic emergency which can cause long term functional and psychological impairment, often in already vulnerable patients receiving cancer treatment or intensive care, compounding their ongoing issues. The vast majority of treatment guidelines vary due to a substantial paucity of high-grade evidence resulting in a lack of consensus about the most effective management option. As such, clinical practice varies greatly between national and even international units, impacting patient welfare and healthcare burden. This study aims to: 1) review the current literature surrounding the management of extravasation injuries, 2) audit patient data for all extravasation injuries against regional guidance.

Methods

A two-step methodology was employed: 1) The PubMed database was searched using truncation, Boolean operators and key MeSH terms to identify relevant articles. Inclusion criteria: English language and Humans. A Google search was conducted to identify additional unpublished literature regarding extravasation management. The PRISMA framework was used to systematically screen and evaluate chosen articles. 2) Patients with extravasation injuries were retrospectively identified between Nov 2015 - Nov 2020. Clinical data was extracted using EDMS hospital records noting the: management, sequelae of injury and quality of documentation as per regional guidance.

Results

1) 6 guidelines were identified. All 6 recommended localise & neutralise or disperse & dilute followed by plastics referral as appropriate. Dimethyl sulfoxide, hyaluronidase and dexrazoxane were the recommended antidotes by all studies, whilst 3 mentioned sulfur sulfadiazine. All 6 recognised the limited evidence base and emphasised the importance of consistent documentation for optimal management. No guidelines considered the psychological implications of extravasation injuries upon the patient.

2) 45 patients (11 Male, 34 Female) with a mean age of 62 years (Range: 32-83) were identified. All injuries occurred peripherally, mainly localised to the right hand region (n=24). The most frequent underlying primary diagnosis was cancer (n=43) and the most common cause of extravasation were chemotherapeutic agents (n=28), notably vesicants (n=21). Sixteen patients had their concurrent cancer therapy suspended as a direct result of the injury. Importantly, 33 patients did not have a completed extravasation proforma within their records and only 14 patients were formally provided information leaflets. Some level of psychological input was offered to 6 patients.

Conclusion

Our literature review highlighted that all 6 guidelines were largely aligned in their respective clinical recommendations surrounding treatment and prevention. This study is one of the first to identify a lack of formal psychological consideration within current literature and regional guidance. Our audit findings showed that extravasated agents were well identified and most patients received appropriate immediate care. However, despite the availability of a clear extravasation proforma, this was only completed for 36% of patients resulting in suboptimal documentation. Consistent documentation and completing the extravasation proforma are paramount for clinical care as well as preventing expensive medico-legal consequences. We recommend a proforma based unification of guidelines with the addition of a psychological component to holistically reduce patient morbidity and address unmet needs.

Aesthetic tattoos as a treatment adjunct for scars from burns and trauma: a literature review and treatment approach

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction

Medical treatment of scars eventually leads to an endpoint beyond which further treatment is futile. Some patients have used non-medical approaches like aesthetic tattoos to camouflage their scars. High-street tattoos are extremely common in the UK and around the world and are generally well-perceived in Western society. Medical tattooing involves similar techniques used by high-street tattooists. The benefits of aesthetic tattoos for scar camouflage are often tangible but accessibility is hindered by clinicians' lack of knowledge of the tattoo sector, absence of protocols and limited medical literature on safety and effectiveness. There is no formal resource from which clinicians can draw information to advise patients whom might benefit from this intervention or who to refer to.

Purpose of study: To establish a preliminary resource for clinicians and patients, including sign-posting based on our literature review and experience with patients acquiring aesthetic tattoos for scar camouflage.

Methods

We present photographs and feedback from 4 burn patients treated in our burns service who subsequently chose aesthetic tattoos to camouflage their scars. We performed a comprehensive literature search on both medical tattoos and aesthetic tattoos in relation to scar concealment and reflected on their benefit and how these might be made more accessible to patients.

Discussion

Our 4 case examples, all reported high satisfaction with the scar camouflage achieved by their aesthetic tattoos. Our literature search found that aesthetic tattoos for scar camouflage were usually a patient-initiated approach. All patients in the literature reported high satisfaction with the tattoo camouflage and had positive experiences. We did not find any reports on negative experiences or complications.

We also explored ways to make this option more accessible such as:

1. List of tattoo artists offering such services
2. Brochures containing photographs and previous patient experiences
3. Ways of empowering clinicians to answer patients questions regarding safety and feasibility
4. Vigilance in our patients in relation to adverse outcomes following the intervention

We furthermore explored the possibility of engaging with tattooist to open up dialogue. With this we hope to bridge the gap between medical professionals and high street tattoo artists and be able to advise patients appropriately when asked about safety of tattooing over scars.

Conclusions

There is a lack of literature on safety or outcomes of aesthetic tattoos for scar camouflage and hence medical professionals are not easily able to advise patient regarding this. However this unconventional approach to camouflage scars can play a significant role in ending a cycle of diminishing returns from medical interventions including use of standard cosmetic camouflage. This adjunctive intervention may positively impact on patient's self-esteem. Further consideration is needed to make this scar treatment adjunct more accessible to patients. The first step will include engagement and dialogue with our 4 patients who all demonstrated outcomes that were superior to medical intervention. Further work is needed including an understanding of what medical interventions might facilitate tattooing on scars.

Paediatric Burns of the Hand: Our Experience Over Three Years

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction:

Children are curious by nature and as soon they become independently mobile, they start to use their hands to explore their environment. This process is a crucial step in their overall development. Inevitably, they will come into contact with items within their surroundings that can result in injuries. Thermal injuries involving hands can be complicated and require proper management plans to protect function and appearance. For a child, thermal injuries can be overwhelming, and management of these injuries can result in pain and distress.

Given that burn injuries to the hand comprise a significant number of paediatric burn injury hospital admissions, we hope to share our unit's experience regarding such injuries to aid the progress towards the development of outcome predictors, optimal management pathways for both the injury and possible psychological trauma and prevention methods.

Purpose of the Study:

The aim of this study was to determine the different presentations of hand burn injuries and analyse the outcomes in the paediatric population at Royal Aberdeen Children's Hospital (RACH).

Methods:

Anonymised clinic data for paediatric patients with hand burns presenting to our burn centre from 2017 to 2020 were retrospectively reviewed. A total of 52 patients (65 affected hands) were included in the study. Clinic letters stored on NHS Grampian's electronic patient record system were reviewed for burn surface area, time to healing, management measures including medications prescribed and sequelae of the burn injury.

Results:

The average patient age was three years and four months old. There were 31 male patients and 21 female patients. Paediatric hand burns were most commonly confined to the palm only, followed by the fingers only. Contact with a hob was the most common aetiology, followed by scald burns. The average time to healing was 10 days (range 2-28 days). No correlation was found between length of stay on initial hospital admission and time to complete healing. A total of 86.5% (n=45) of patients were managed with dressings and 13.5% (n=7) of patients underwent surgical management. Of these seven patients, four had surgical debridement of burn tissue, washout, and dressing, and the remaining three had an excision and grafting with thick split-thickness skin grafts. Of these three patients, one patient had to undergo secondary reconstruction with a full-thickness skin graft.

Conclusion:

It has been found that most patients in this study completely healed with primarily conservative measures of dressing care and regular check-ups. Isolated hand burns in the paediatric population present a low rate of sequelae and palms are the most common area of burn injury in this demographic

Clinical evaluation to monitor efficacy and performance of Medihoney® Wound Gel and Flaminal® in managing burn wounds.

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction

Infection prevention is one of the most essential components of any wound management, more so in burn wounds. The presence of devitalised tissue and exudates pose an ideal medium to harbour bacteria. As bacterial bioburden increases in a wound bed, signs/ onset of infection delays the wound healing process and leads to complications. Prompt and suitable introduction of antimicrobials can reduce the risk of developing complications (Landis, 2008). Traditionally in our unit, first method of treatment is topical silver.

Purpose

This evaluation aims to evaluate the antimicrobial and debriding potential of Medihoney® Wound Gel and Flaminal® (Reactive Oxygen Species (ROS)) as alternative agents for use in burn wounds and when patients are contraindicated to our standard dressing products.

Method

Each evaluation was conducted independently and are being reported as a comparison. The evaluations included 12 patients each, who consented and digital images taken at dressing changes (1 or more) in the review clinic. A ten-point Likert scale was used to plot the parameters (0 low-10 severe) such as pain on application, in situ and on removal, (0 poor-10 good) debriding action, along with a range of other wound factors, including signs of infection. Patient and staff experiences were also noted.

Results/Discussion

There were no reported signs of infection in both studies and wound progression and healing continued as expected. The debriding action of Medihoney® scored comparatively lower to that of Flaminal®. Both staff and patient feedback commented on difficulty on removal from the tube and application of Medihoney® (due to its viscous nature- required warming for ease of use). Pain scores on removal varied due to use of diverse secondary dressings which may have influenced scores, but overall Flaminal® product scored lower on pain removal scores. Both rinsed away easily with no problems of pseudo-eschar. When comparing the 2 patient cohorts, the Flaminal® group were less deep but larger TBSA, the Medihoney® group were deeper but smaller injuries and the groups were evenly matched for age.

Conclusion

Both products performed well and were accepted by staff and patients. Both appear to exhibit potential antimicrobial and autolytic debriding properties as burn wounds progressed. These simple clinical evaluations demonstrated that the Flaminal® range was relatively painless in application, wear, and removal, was easy to apply and had good debriding potential. The product was acceptable to patients with no painful reactions and preferred by clinical staff. Flaminal® is now a standard treatment within the burns service. Future comparative studies are required to identify and address the findings presented in this evaluation.

References

Landis, S. J. (2008). Chronic wound infection and antimicrobial use. *Advances in skin & wound care*, 21(11), 531-540.

	Male: Female Ratio	Mean TBSA %	Mean Age	Burn Depth	Mechanism of injury
Medihoney® Wound Gel	6:6	0.35% (Range:0.1-2%)	42.5yrs (17-88yrs)	Mixed Depth – 1 Deep Dermal – 7 Full Thickness -4	Contact – 7 Scald – 3 Flame – 1 Chemical - 1
Flaminal®	4:8	1.09% (Range 0.01 – 7%)	43.75yrs (18-80yrs)	Superficial Dermal-4 Mixed Depth – 3 Deep Dermal - 5	Contact -2 Scald – 9 Cold - 1

Toxic shock syndrome: Beware of small friction burns to the hand

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction

Toxic shock syndrome (TSS) is a rare but potentially life-threatening complication of burns in young children. Its incidence in friction burns is not common but can occur. Small children most often sustain friction burns in the home from either treadmills or vacuum cleaners (1). Vacuum cleaners have been shown in studies to harbour reservoirs of microbial contamination (2) and can present a higher risk of TSS. We report a case of TSS occurring in a 1.5-year-old child who suffered a small vacuum-cleaner friction burn on his finger and developed TSS.

Purpose of study

This case report aims to raise awareness of the potential for TSS in small friction burns to the hand. These may be managed in general plastic surgery or hand departments, where there is less awareness of the potential for TSS than there is in the scenario following for example, a scald injury.

Methods

A 1.5-year-old male sustained a mid to deep dermal friction burn (0.1% TBSA) to his left middle finger, which was cleaned and dressed, however the child was not started on antibiotics. The following day, the area surrounding the burn developed cellulitis and the patient deteriorated and developed an extensive rash to several body areas, pyrexia, and gastrointestinal symptoms. The child was then referred to a tertiary centre and immediately started on the TSS treatment protocol including high dose intravenous antibiotics (Flucloxacillin and Clindamycin), pooled human plasma (Octaplas, Octapharma, USA), and fluid resuscitation. The early recognition and treatment of TSS resulted in a marked improvement in the patient and the burn wound healed with conservative management with regular silver dressings. Microbiological analysis of the wound swabs showed heavy growth of *Staphylococcus aureus* and the presence of Toxic Shock Syndrome Toxin 1 (TSST-1).

Results and discussion

This case has shown that TSS can occur rapidly in even small friction burns in young children however swift intervention can prevent deterioration.

Conclusion

Health care providers need to have a high index of suspicion of TSS in any small wound in young children, including friction burns to the hand, and intervene early to prevent complications.

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Acute Multidisciplinary Management of Steven-Johnsons Syndrome/Toxic Epidermal Necrolysis (TEN): focus on multidisciplinary management and ophthalmic care

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction

Toxic Epidermal Necrolysis Syndrome (TENS), is an immune-mediated, life-threatening disease of the skin and mucous membranes. Though rare, NHS England reports an incidence rate of between 1-2/million. (1) SJS/TEN carry an overall mortality rate of 22%, thus prompt multidisciplinary management is necessary. Even though early intervention in all areas affected by Muco-dermatitis leads to full epithelialization of the skin, the mucosal surfaces require close attention in order to avoid scarring, stricture or irreversible loss of function. Ocular involvement is seen in around 75% of cases (2, 3) and can result in potentially blinding ocular surface complications.

Purpose

To describe a case presentation and acute ocular management of SJS/TEN, highlighting the importance multidisciplinary treatment including early and regular ophthalmic input.

Methods

We present a case report of SJS/TEN, presumed secondary to lamotrigine therapy, in a teenage girl managed on a tertiary Burns Intensive Care Unit. Extensive involvement of the skin and mucosal surfaces was managed in a multidisciplinary fashion by Plastic Surgery, Dermatology. Oculo-Plastic, Ophthalmic, Gynaecology, and infection control teams in a Burns Intensive care setting. Skin loss was managed with thorough dressing care and the use of dermal substitutes. Nutrition was carefully monitored and administered via naso-gastric feeding. Gynaecology involvement assessed and managed the potential for stricture and genital scarring. Awareness for the preservation of vision soon became the main challenge of the patient's management. Ocular manifestations included initial conjunctival inflammation and de-epithelialisation (80% conjunctival loss). This was managed with intensive topical, preservative-free steroids, lubricants and antibiotics. Prompt surgical intervention with fresh amniotic membrane transplantation (AMT) over the ocular surface was achieved within the first week of presentation. As the amnion absorbed, corneas of both eyes developed large epithelial defects, stromal haze, stromal thinning and bullae. This was managed with repetitive placement of Omnigen® - dry, human amniotic membrane-derived material and bandage contact lenses at the bedside. The patient also received intravenous methyl prednisolone and IVIg.

Results/Discussion:

Even though modulation of the disease was successfully achieved promptly, epithelialization was slow and subjected to setbacks dictated by episodes of infection.

Skin recovery was ultimately complete and the early involvement of the oculo-plastic and Ophthalmic teams was determinant in ultimate vision preservation and successful patient outcome

Both eyes showed improvement with healing of the epithelial defect and reduction of the stromal haze with retention of a well-lubricated ocular surface. There were no cicatricial sequelae.

Early management of the ocular surface is needed to prevent cicatricial complications of SJS/TEN including corneal perforation, symblepharon, keratinization, trichiasis and cicatricial entropion. While the role of medical treatment with intensive steroid drops and lubricants remains crucial, fresh AMT reduces ocular surface inflammation and prevents formation of symblepharon in the acute setting. AMT also preserves tear secretion and vision in the long term. (4)

Conclusion

Whilst SJS/TEN remains a rare disease, those caring for patients should be aware of the potentially devastating ocular complications. Multidisciplinary management including early and regular ophthalmic input is necessary to mitigate the severity of chronic eye disease and visual morbidity from SJS/TEN.

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Necrotising fasciitis: a five year retrospective review of cases referred to a Plastics and Burns Unit for initial management or reconstruction.

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction:

Necrotising fasciitis forms part of a spectrum of necrotising soft tissue infections and can be a difficult diagnosis to make. These patients require highly specialist wound management with resource intensive care, and are increasingly managed by burns teams. However, timing of involvement should be optimised as they can represent a significant demand on both theatre time and bed days. Due to regional differences in incidence rates and microbiological pathogens, it can be difficult to anticipate demand on our service.

Purpose:

To characterise the nature of necrotising fasciitis cases referred to our unit over a five year period and review their management and reconstructive course.

Methods:

A search was conducted of patient records of all cases with a diagnosis of 'necrotising fasciitis' or 'Fournier's Gangrene' referred between January 2016 and December 2020. These were manually reviewed to include only cases considered to be necrotising fasciitis by the operating surgeon at initial debridement. A retrospective review of data was then conducted to analyse demographic details, presentation, intraoperative diagnosis, timing and number of debridements, reconstructive method, length of stay, burns multidisciplinary team involvement and mortality.

Results

52 patients were included in our study. 67%(n=35) were male and 33%(n=17) were female. The median age was 58. 37%(n=19) were obese, 31%(n=17) were smokers, 31%(n=17) were diabetic and 10%(n=5) were intravenous drug users. The median number of cases referred each year was 11(range 7-12).

23 patients were only referred at the point of reconstruction and 11 patients were solely managed under our department from the point of diagnosis. The remaining 18 patients received plastic surgery input from initial or subsequent debridement, but were primarily managed by an alternative surgical specialty prior to reconstruction.

29%(n=12) had a CT performed for diagnosis, 16%(n=5) had a sweep test. Only 1 patient had a documented LRINEC score. All cases were believed to be necrotising fasciitis by the operating surgeon at time of theatre.

55%(n=23) of cases were polymicrobial and 35%(n=14) were monomicrobial (n=14). Histology was consistent with necrotising fasciitis in 18 patients, inconsistent or inconclusive in 2 patients, with no sample sent in the remainder of cases. Mortality rate at discharge was 10%(n=3).

60%(n=29) of survivors had their reconstruction completed during their initial admission. All were managed on our burns ward with specialist burns nurse wound care. 80%(n=39) received formal burns multidisciplinary team input. The most frequent method of wound closure was split thickness skin grafting(n=35), 6 patients healed by secondary intention and 5 patients had direct closure. 3 patients had dermal skin substitutes, 2 had pedicled flaps and there was one free flap. 63%(n=31) required a single reconstructive operation, 11 required 2 operations and one patient underwent 4 operations. Median length of stay was 22 days(range 8-52).

Conclusions

This review highlights some of the complexities in diagnosis and management of this condition. Timely burns MDT input can promote early reconstruction and provide support for the management of these complex patients. Referral rates have been similar over the past five years which allows our service to plan ahead.

Neuropsychiatric presentations in burns associated with voltage-gated potassium channel antibodies: a case report and literature review

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Mental health issues for burn injured patients have numerous consequences for care, recovery and follow up. It is well recognised that many burn survivors will experience mental health issues but separate to postburn psychological morbidity is the substantial burden of pre-existing mental health conditions that can, in some cases, even predispose to burns. These conditions, such as substance misuse, affective disorders, and behavioural or personality disorders are common but not always easy to treat in the context of fear and helplessness, dealing with the physical and emotional consequences of injury, and all the secondary stressors that contribute to the perception of trauma.

We present a case of a mid-30s male who presented with progressive deterioration in mental health in the months prior to the burn event. There were some bizarre changes to their personality that included cognitive impairment, hoarding of flammable material within their domestic residence, evolving persecutory delusions and social withdrawal, which eventually culminated in a 'purgatory' fire setting event. He was extricated from his burning residence and admitted to a regional burns centre with a 5%TBSA mid dermal burn complicated by a severe inhalation injury. His burn was healed within ten days but his progress on the intensive care unit was stormy due not only to the anticipated systemic consequences of inhaled toxic products of combustion and a ventilator-associated pneumonia, but also marked difficulty in managing sedation and ventilator weaning that necessitated a tracheostomy. A significant part of the difficulties was due to his almost complete resistance to the use of most sedative agents and neuroleptic medications. He was reviewed regularly by a neuropsychiatric team and eventually stabilised on a combination of medications that allowed safe discharge for ongoing inpatient mental health care.

A number of additional investigations were ordered in an effort to explain his atypical behaviour, which was increasingly difficult to explain as his premorbid state was otherwise unremarkable apart from glucose-6-phosphate dehydrogenase deficiency. An encephalitis screen identified significantly raised voltage-gated potassium channel (VGKC) antibodies. An autoimmune VGKC encephalitis can be successfully treated with immunotherapy, often a five day pulse of hydrocortisone.

First reported in 1995, VGKCs are present on the membrane of neurons in both the central and peripheral nervous system, where they mediate repolarisation after an action potential. VGKC antibodies were first recognised as having a potential pathogenic role in disorders of the central nervous system in 2001, being clearly described in 13 patients with limbic encephalitis in 2004. These initial case descriptions described a progressive neuropsychiatric syndrome with abnormalities of mood, sleep and cognition as well as symptoms of seizures or seizure-like activity and autonomic instability. The clinical syndromes associated with VGKC antibodies have broadened considerably since these first cases.

Burn care teams must remain vigilant for atypical mental health presentations and always consider encephalopathy as a possible, and most importantly treatable, differential diagnosis.

The use of a biodegradable temporising matrix Novosorb in a child without the need for subsequent grafting: a case report

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction

Novosorb is a biodegradable temporising matrix (BTM) used to reconstruct the dermal layer of skin. It is promoted as a useful tool to reconstruct defects with exposed tendon or bone that would not be amenable to reconstruction with a skin graft alone.

Purpose of the study

This is the first report of Novosorb reconstruction for a burn wound with exposed tendon in a child with spontaneous epithelialisation that did not require a skin graft.

Methods

Details of the case including photographs were obtained from the clinical records with parental consent. A literature search was carried out using Medline.

Case

We describe the use of Novosorb in a paediatric patient who sustained a friction burn over the lateral malleolus with exposed tendon, that underwent debridement and application of Novosorb. Epithelialisation at the edge of the wound led to spontaneous delamination of the sealing membrane of Novosorb and subsequent complete wound closure without the need for a skin graft. The resulting wound had a good appearance and allowed a good range of motion at the ankle.

Discussion

Full thickness defects around the foot and ankle are challenging, with a variety of options available but very few that are considered one-stage or avoid the need for complex surgery.

The other treatment options in this case would have been allowing the wound to heal by secondary intention, local or regional flap reconstruction or the use of an alternative dermal matrix of animal origin. Healing by secondary intention may have resulted in a contracted scar impeding ankle movements. Flaps to the ankle are technically challenging and can be bulky and interfere with shoe wear and foot function.

Alternative dermal replacements such as Integra can provoke ethical and cultural challenges and have a higher risk of infection. Although most dermal replacements are 2-stage in the management of defects with exposed tendons or bone, spontaneous epithelialisation can occur and avoid the need for a skin graft donor site, not at the expense of a hypertrophic scar or scar contracture.

Conclusion

Due to the excellent functional and aesthetic outcomes of the wound reconstruction in this child, the use of Novosorb in this way should be investigated further. Cases that are amenable to epithelialising without a graft could be stratified to reduce the need for a second stage procedure.

A fishy tail: a case report of reactions to fish skin dressings in two burns patients

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction:

Kerecis® acellular Atlantic cod fish skin substitute has been marketed as a minimally processed skin substitute with a microscopic structure that closely resembles human skin. It retains omega-3 fatty acids which may help promote wound healing, is supposedly hypoallergenic and does not require processing for viral inactivation.

This biological wound dressing, otherwise known as omega 3 dressing, is mainly used in large surface area burns where the donor site is limited and early coverage of the wounds is needed. However, it can also be applied to donor sites in the elderly in order to expedite wound healing.

Purpose of study:

The purpose of this study was to present the results of our service evaluation of the first two clinical cases of the use of Kerecis® on donor sites in a regional burns centre.

Methods:

We conducted a retrospective review of the patients' notes, clinical imaging and histological skin biopsies.

Results:

Two patients were treated with fenestrated Kerecis® skin substitute on split skin graft donor sites in November 2021. Patient 1 (JT) was a 76-year-old lady who sustained a 4% total body surface area (TBSA) scald burn to the left thigh and underwent excision and split skin grafting (from the right lateral thigh) 6 days after the initial injury. Her past medical history included asthma and hypertension. Medications included Amlodipine, Doxazosin and a Salbutamol inhaler.

Patient 2 (AW) was a 74-year-old man who sustained a 4% TBSA scald burn to the left forearm and underwent excision and split skin grafting (left lateral thigh) 4 days after the initial injury. His past medical history included a previous cerebrovascular accident and traumatic brain injury. Medications included aspirin, lansoprazole and sodium valproate.

Both patients were given intravenous prophylactic antibiotics for 48 hours post-procedure (Teicoplanin and Gentamicin as per local policy). On day 5 post-surgery the donor sites of both patients were reviewed and it was noted that both had developed a localised reaction associated with Kerecis characterised by excessive exudate, erythema and hypertrophy of the underlying dermis. Both donor sites were treated with Mepilex® AG to treat any localised infection and absorb the exudate.

Three weeks after surgery, Patient 1 also developed an erythematous rash on her forearm which was found to show spongiotic dermatitis on histological analysis and was attributed to an allergic reaction to Kerecis. Kerecis was removed from the donor site and the patient was treated with antihistamines. The rash subsequently resolved fully.

Conclusion:

Allergic reactions to cadaveric and other mammalian biological dressings have been reported, however, fish skin substitutes have been marketed as hypoallergenic. Although our experience of this product is limited, it emphasises the need for thorough product evaluation of any dressing prior to introduction by a service.

Learning and adapting from student nurse experience in an Adult Regional Burns Centre

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction

Typically, nursing students have many differing goals to achieve which vary throughout their training. As the demands of the Adult Regional Burns Centre (ARBC) as a specialised placement area increase, it is important we adapt our teaching style and adhere to meeting student objectives. This will allow students to develop skills and knowledge in more acute areas, helping to improve overall satisfaction whilst on placement. These skills prepare student nurses for their nursing careers which enables them to adjust to life as a newly qualified nurse.

Purpose

Historically only student nurses in year 3 of training were allocated a placement to the ARBC. However, in recent years our trust has begun working closely with different universities leading to an increasing number of student nurses of different levels of experience, being allocated a placement. Due to this diversity of knowledge and capabilities, we felt that we needed to ascertain if the experiences we were providing were appropriate for what the student needs and expects from us.

Method

To gain insight into our strengths and weaknesses a questionnaire was devised and sent to all students on placement on the ARBC throughout the year 2021. The questionnaire used a 1-10 rating system with some open ended questions to gauge the students overall experience of the ARBC. The questionnaire aimed to determine the stage of the students learning, the most valuable experience and any aspects of the placement which could be improved.

Results

Of the 24 students that were sent questionnaires 17 responded, with 88.2% of these reporting a positive experience whilst on the ARBC.

4 main themes emerged from the open-ended questions which were i) overall student numbers ii) staff support iii) continuity of care iii) holistic approach to patient care.

They also reported that one of the main positive experiences from their placement was the support and encouragement from the nursing staff and the wider Multi-disciplinary team (MDT).

Whilst many students related positive experiences, feedback also highlighted the need for improvements, one example being that they felt they missed chances and had to battle for opportunities due to the number of students on the same shift.

Conclusion

As previously stated, student numbers on the ARBC are increasing, students have described the negative impact of this on their time with us. It is important to acknowledge this and that more students mean an increase in demand on opportunities and RN time.

By taking on board the reported feedback, we can become more attuned to students' goals which will allow us to develop better working relationships; allow the students to gain more theoretical and practical skills and improve their own confidence thus helping bridge the 'theory-practice gap' (Sharif & Masoumi, 2005). A more structured approach in facilitating the learning opportunities for students will allow a fairer system for the student to gain the most from their placement on the ARBC.

A retrospective case review relating to adult burn injuries sustained from hot water bottle usage

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Posters - Session 5 (P72-P83), Palm Court, May 5, 2022, 16:00 - 16:30

Introduction:

In recent years we have seen a significant proportion of our patients with scalds and contact burns sustained from hot water bottle usage. The hot water bottle (HWB) is a typically British product widely used throughout the UK by people of all ages for warmth or as an aid to relieving pain. However, for many of our patients the product has proved to be a regrettable purchase. Information gathered from patient healthcare records identified common themes leading to injury which included prolonged contact with the skin, i.e., sitting, lying, or resting limbs on the HWBs or overfilling with boiling water causing the rubber to split and burst. Other causes may relate to old or poor-quality materials causing degradation of the rubber and seals.

Purpose

To identify common themes in causation of injury and whether improved education and greater public awareness strategies may reduce prevalence of serious injury in the future.

Methods

We obtained and reviewed IBID data and retrospective analysis of health care records for adult patients' who accessed the Burns Service at Pinderfields hospital within a 5-year period and who received treatment relating to burn injuries through hot water bottle usage. We looked at mechanism and site of injury, %TBSA, depth, treatment received and length of time to heal. We aimed to measure the proportion of patients requiring surgery, ward admission, and number of outpatient visits.

Results/discussion

109 adult patients sustained hot water bottle burns within a 5-year period. A total 22 injuries were sustained via contact with the hot water bottle – 87 were due to a leaking or burst HWB. Upon analysis of data obtained we found 64.24% of total injuries were to the lower body from buttocks down to the feet, while 43.69% were to the upper body from back up to the head. Depth of injury ranged from 22.94% full thickness burns (FT), 40.37% superficial (SPT) and 36.7% partial thickness (PT) burns. 34 patients were admitted for pain or regular wound management, the remaining 75 were treated in our outpatient department requiring at least 2 visits per week for dressing changes. Average TBSA was 4.75%. Of the 110 patients reviewed – 17 consented to surgical intervention. The mean time taken to heal was 32.22 days.

Conclusion

This study highlights the prevalence of HWB burns over a 5-year period, data collected shows the typical distribution and severity of burn injuries sustained as well as time taken to heal. We found that most of these injuries could have been prevented with a greater public awareness and education surrounding the safe use of hot water bottles. Also, the severity and length of time to heal may have been reduced with appropriate and timely first aid. Clearer instruction leaflets, also clarity in identifying safe purchases – i.e., The British Standard Mark and the Date Daisy. Adding visible warning labels with first aid advice may be a way forward in improving public safety and the subsequent physical and financial burden to our patients, the burns service, and the NHS.

Comparing enzymatic debridement with surgical excision - is there a case for change?

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction

Nexobrid is a bromelain-based enzymatic agent reported to have higher specificity for devitalised tissue and aids in its removal. Compared to surgical debridement, it's thought to reduce risk of scarring, time to healing and overall need for further debridement and skin grafting. Timely debridement by any means allows removal of devitalised tissue to prevent infection, improve healing time and shorten length of stay. However comparative data outside of planned research is still relatively sparse.

Purpose of the Study

This study seeks to determine the aesthetic, functional and logistic effect of enzymatic debridement (ED) for partial and full thickness burns compared with standard care (surgery or dressings or combination) (SC) in a large UK burns unit.

Methods

A single centre retrospective comparative review was conducted comparing outcomes of burn management involving ED versus SC by reviewing notes from 2018 – 2020. Inclusion criteria included adult patients with partial and full-thickness thermal burns. Exclusion criteria included paediatric cases, unfit surgical candidates, electrical, chemical and friction burns, diabetic foot involvement and ongoing infection. Outcome data was collected following review of patient notes and local data from International Burn Injury Database (iBID). Primary outcome measures were degree of scarring (POSAS score) and need for further intervention (surgery/therapy/steroid injections). Secondary outcome measures included length of inpatient stay, healing time and local and systemic symptoms or complications. Statistical comparative analysis was performed involving mean values, unpaired T-tests and confidence intervals.

Results

93 individuals with mean burn TBSA of 3.84% received ED compared with 98 individuals with mean burn TBSA of 6% who received SC ($p = 0.014$). Mean inpatient length of stay in the ED cohort was 6.31 days compared with 9.25 days for SC cohort ($p=0.08$). Mean healing times were reported for 84 ED patients as 56.4 days and 94 SC patients as 54.4 days ($p=0.77$). Within the ED cohort 10 patients required further surgical intervention and only 2 patients within the group required steroid injections for scarring concerns.

Discussion

Mean patient age and %-burn TBSA were increased in the SC cohort, however there was no difference in mean healing time or length of inpatient stay. Although ED is considered to lead to longer healing time we did not find this in practice. Further surgical intervention was required in approximately 10% of the ED cohort. Most ED cases were typically for management in the ward-based setting, however their low rate of theatre visits and consequent reduction in burns theatre resource requirements is significant in the climate of theatre capacity limitations.

Conclusion

ED is a safe debridement option and shows low requirement for theatre resources. It is comparable with SC regarding healing and length of inpatient stay and is acceptable to patients. It may be a useful tool in managing burns and has potential benefits in resource-limited settings. To further this study, we hope to increase our dataset and report aesthetic and functional outcomes for our SC cohort to perform comparative and sub-group analyses.

The role of enzymatic burn wound debridement in reducing red blood cell transfusions

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction:

Anaemia is often associated with large burn injuries and occurs due to physiological changes and blood loss during surgical excision. Larger excisions risk greater blood loss, as a greater surface area of tissue is debrided to a healthy bleeding base. Red blood cell (RBC) transfusions are given to treat significant anaemias and prevent the adverse effects of low haemoglobin levels. However, blood transfusions are associated with their own risks including transfusion associated circulatory overload (TACO), transfusion related lung injury (TRALI), infection and immunosuppression.

Nexobrid is topical mixture of proteolytic enzymes and bromelain which is itself an extract of pineapple stems. When applied to deep dermal and full-thickness burns over a four-hour period, the enzymes within Nexobrid debride the burn eschar without damaging the underlying healthy tissue. Such a targeted debridement can reduce the risk of over-excision during tangential debridement and associated blood loss, thereby reducing the requirements for blood transfusions.

Purpose of the study:

To investigate whether enzymatic debridement of burn wounds reduces the requirement for red blood cell transfusions in burn patients compared to tangential excision.

Methods: including statement of methods used to obtain data:

A retrospective single-centre cohort study evaluated all patients who underwent Nexobrid debridement at Pinderfields Hospital, United Kingdom, from January 2016 to January 2020. All patients were cross referenced with the transfusion laboratory who provided information about any blood transfusions given within 28 days from admission.

Results:

57 patients were treated with Nexobrid from 2016 to January 2020 with a TBSA ranging from 0.25-80%. 24 (42%) of those patients had Nexobrid debridement exclusively, whilst 33 (58%) had both enzymatic and tangential burn wound excision. 15 of the 57 patients required a RBC transfusion (13-80% TBSA). Of those 15 patients, only 2 (13%) had debridement with Nexobrid exclusively (TBSA of 25% & 62%). None of those treated by Nexobrid alone required a transfusion at the time of debridement but 8 and 10 days after Nexobrid application. 13 of the 15 patients requiring transfusion (87%) had a combination of enzymatic and tangential excision; 10 of the 15 had predominantly tangential excision. 7 patients required 9 or more units of RBC transfusions in the 28-day period; 6 of those had predominantly tangential excision. 7 patients required transfusions on the day of tangential excision (54%).

Conclusions:

Only 13% of burn patients who required an RBC transfusion were treated exclusively with Nexobrid and neither of those patients required a transfusion within 8 days of the debridement. The patients who required larger numbers of RBC transfusions were managed predominantly by tangential excision. As such, this suggests that enzymatic debridement of burn wounds reduces the requirement for RBC transfusion and the risks involved. Furthermore, transfusion in patients treated by Nexobrid exclusively likely results from subsequent graft harvesting and reconstruction than the debridement itself.

***WINNER - BEST POSTER (Research)** Photodynamic antimicrobial chemotherapy coupled with the use of the photosensitizers methylene blue and temoporfin as a potential novel treatment for staphylococcus aureus in burn wound infections**

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction

Photodynamic therapy is a technique most frequently used to treat tumours that relies on photosensitising drug acting on cells which are subsequently destroyed with light activation. Photodynamic antimicrobial chemotherapy (PACT) is a novel alternative antimicrobial therapy that elicits a broad mechanism of action and therefore has a low probability of generating resistance. Such properties make PACT ideally suited for utilization in localized applications such as burn wounds.

Objective of the study: The aim of this study was to determine the antimicrobial activity of Methylene Blue (MB) and temoporfin against both a *S. aureus* isolate and a *P. aeruginosa* isolate in light (640 nm) and dark conditions at a range of time points (0–20 min).

Methods

A *Staphylococcus aureus* isolate and a *Pseudomonas aeruginosa* isolate were treated in vitro with MB and temoporfin under different conditions following exposure to light at 640 nm and in no-light (dark) conditions. Bacterial cell viability [colony-forming units (c.f.u.) ml⁻¹] was then calculated.

Results

Temoporfin completely eradicated *S. aureus* in both light and dark conditions after 1 min (where a seven log reduction in c.f.u. ml⁻¹ was observed). MB resulted in a loss of *S. aureus* viability, with a two log reduction in bacterial viability (c.f.u. ml⁻¹) reported in both light and dark conditions after 20 min exposure time. Temoporfin demonstrated greater antimicrobial efficacy than MB against both the *S. aureus* and *P. aeruginosa* isolates tested. At 12.5 µM temoporfin resulted in complete eradication of *S. aureus*. Against *P. aeruginosa*, when MB was used as the photosensitizer, no phototoxic effect was observed in either light or dark conditions. After treatment with temoporfin, a reduction of less than one log (7.00×10⁷ c.f.u. ml⁻¹) was observed in the light after 20 min of exposure.

Conclusions

In light of this study, further research into the validity of PACT, coupled with the photosensitizers (such as Temoporfin), should be conducted in order to potentially develop alternative antimicrobial treatment regimes for burn and other wounds. The potential to successfully treat infecting and colonising organisms without antibiotics is an exciting development that warrants further study.

Hypothermia in severe burns presenting at a regional burn centre

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction

There are no unifying definitions on hypothermia. The National Institute for Health and Clinical Excellence (NICE) defines hypothermia as a core body temperature of $< 36.0^{\circ}\text{C}$ while BMJ Best Practice guidelines state a temperature of $< 35^{\circ}\text{C}$. Hypothermia in burns has been associated with increased mortality even after adjusting for burn severity. The causes of hypothermia in burn patients are multifactorial. The pathophysiological changes that follow a declining core temperature have deleterious effects which can ultimately lead to death.

Purpose of study:

- 1) To determine the incidence of hypothermia amongst adult burns requiring resuscitation presenting at a regional burns centre
- 2) To evaluate practices around temperature recording and patient re-warming in acute burns

Methodology

A retrospective study was carried using patient records from the burns database. All severe burns requiring fluid resuscitation admitted between October 2018 and April 2021 were included. Variables analyzed included: demographics, mechanism of burn, total body surface area (TBSA), time from injury to admission, Modified Baux score, Glasgow Coma Scale, temperatures on scene, emergency department and on admission to burns or ITU, and use of rewarming.

Results/ Discussion

A total of 29 patients were admitted with large burns requiring resuscitation. 65.5% of these patients were male ($n=19$). Ages ranged from 23 - 87 years, with the 41 -50 age group having the highest number of patients ($n=9$). Flame burns were the commonest mechanism of burn (83% of patients) and the TBSA ranged from 15% - 75%. Earliest presentation to hospital was within 40 minutes from the time of injury, with the longest delay in presentation being 24 hours. Delayed presentations were mainly attributed to patient factors such as mental health problems or substance abuse. There was poor documentation of temperature on scene by the ambulance services, and whether re-warming was used. There was 37% mortality ($n=11$) in the studied population. The mortality group had a higher mean modified Baux score of 113 (range 80 -154) while the survivors had a mean score of 81.8 (range 46 – 110). The mean temperature in the mortality group was lower than the survivors group, 35.4°C (SD =0.64) versus 35.7°C (SD =1.79). 81% of patients in the mortality group had hypothermia during their initial temperature assessment while only 38% of the survivors had hypothermia at initial assessment.

Conclusions

This study highlights the problem of hypothermia in large burns presenting acutely. This study also highlighted that temperature recording and documentation were poor during the early assessment of these high risk patients. This retrospective analysis could not determine how temperature was recorded and which devices were used.

Following our study, we recommended improvement in temperature recording using a uniform method for core temperatures at all points of initial assessment, improvement in documentation, as well as early patient re-warming. Relevant first responders will be provided with feedback and advised to prudently avoid and manage hypothermia. Furthermore the burns admission proforma at our burn centre will be revised to include patient rewarming.

Use of Biodegradable Temporising Matrix (BTM) for extensive soft tissue defect reconstruction in a neonate.

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction

BTM is a recently introduced synthetic, non-biological polyurethane dermal substitute. Its use has been well documented in adults including in wounds at high risk of infection which gives it an advantage over the traditional biological dermal templates such as Integra and Matriderm. However there has been no documented use of BTM in neonates in the literature so far. Here we present a case where BTM has been used for reconstruction of a significant soft tissue defect in a premature neonate.

Purpose of the study

To describe our centre's experience of the use of BTM in a premature neonate.

Methods

A 35-week-old male was born with an intrauterine limb ischaemia of his Right leg and foot and contralateral stroke with resultant loss of skin and necrosis of the posterior compartment muscles.

The child underwent multiple debridement procedures and the wound beds on the calf, dorsum and sole of the foot were covered with BTM at week 2 after consultation with the Burns team. Silicone (Mepitel, Mölnlycke Health Care, Sweden) and silver dressings (Acticoat, Smith-Nephew, USA), were used as the secondary dressing as topical negative pressure dressings were not suitable due to the fragile blood supply to the leg. Dressing changes were done every 3-4 days, initially in theatre but then on the ward with oral analgesia. Two instances of colonisation with mycelial fungi and Enterococcus cloacae occurred but neither compromised the BTM and resolved with washout of the affected areas and antibiotics. About 50% of the BTM was lost due residual necrotic tissue on the wound bed and was removed at week 2. At week 4, the outer layer of the surviving BTM was removed and successfully skin grafted.

Results/Discussion

Our experience has shown that BTM can be used safely and successfully in neonates and is superior to biological skin substitutes in terms of resistance to infection. Even in areas where necrotic tissue was still present, the BTM functioned as a superior non-biological dressing which allowed for regular dressing changes to be done on the ward without general anaesthesia or sedation.

Conclusion

Our report shows that BTM can be safely used for reconstruction in neonates and presents a highly suitable option in neonates requiring reconstruction including defects down to muscle and should be considered in neonates with extensive or deep burn injuries.

Is the use of a powered dermatome an aerosol-generating procedure (AGP)? Implications for personal protection against COVID-19 virus

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction: Many healthcare workers have contracted SARS-CoV-2 during the pandemic, many cases of which have resulted in severe illness and death. No studies have assessed the potential for powered dermatomes to generate aerosol, an essential technique in burns and plastic surgery.

Purpose of study: To capture video footage to illustrate the potential for a powered dermatome to generate significant spray and hence aerosol.

Methods: We utilised a simulated skin graft harvest experimental method. Fluorescein-stained saline was used with ultraviolet (UV) backlighting to demonstrate fluorescent spray from a popular brand of air-powered dermatome. Ultra-slow-motion (960 frames/s) video was used to demonstrate the oscillation of the dermatome blade and the origin within the machine of any spray generated, and the extent of spray generated.

Results: The key finding from this study is the captured video footage linked with this paper. Droplets of various sizes are seen spraying out from the leading edge at the sides where the blade oscillates. UV backlighting provides a clear demonstration of the dermatome generating fine spray.

Conclusion: Our study demonstrates that powered dermatome usage is likely to generate aerosol from blood or blood-contaminated fluid, but does not demonstrate or quantify to what extent this may be clinically relevant in terms of viral transmission potential. We suggest ways to reduce the risk of spray from dermatomes including limiting donor-site bleeding and avoiding a wet donor area.

Reference: Shokrollahi K, Kyriazidis I, Zak-Williams S, Jones C, Murgatroyd E, Gurusinghe D. Is the use of a powered dermatome an aerosol-generating procedure (AGP)? Implications for personal protection against COVID-19 virus. Scars, Burns & Healing. January 2020. doi:10.1177/2059513120951920

Improving Knowledge and Confidence Managing Burns: a single-centre quality improvement project

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

INTRODUCTION: Undergraduate surgical teaching remains limited across the UK, with many graduates leaving medical school lacking knowledge or confidence in the management of common surgical conditions, especially in burns. Patients with burns are often encountered by junior doctors in A&E, hence it is crucial for juniors to have a basic understanding of burns management.

OBJECTIVES: To improve patient care by enhancing the knowledge and confidence of trainees in the management of burns with a single teaching session, addressing the key elements of burns management.

METHODS: Junior doctors were tested in two separate groups (medical students and foundation year 1 trainees in the first, and A&E SHOs and trainees in the second). In both groups, a 45-minute teaching session covered basic burns pathology, assessment and management. A pre- and post-teaching questionnaire was used to measure both subjective ratings of knowledge and confidence in burns management. Specific competencies such as testing the methods for assessing burns, the antidote for cyanide poisoning, and the correct fluid type for burns resuscitation, were assessed as well.

RESULTS: In the first group there were 22 pre-teaching and 18 post-teaching questionnaire responses. Subjective level of knowledge increased in both groups (pre-teaching: 63.6% 'no knowledge', 50% 'little knowledge'; post-teaching: 93.8% adequate knowledge, 100% good knowledge). Both groups had greater confidence post-intervention (pre-teaching: 81.8% no confidence, 66.7% little confidence; post-teaching: 87.5% adequate confidence, 100% very confident). Correct responses to questions testing specific competencies also increased post-intervention in both groups.

DISCUSSION: This study demonstrated the benefits of deploying an educational intervention to improve junior doctors' knowledge in burns with minimal cost. The lack of undergraduate training in burns management can be corrected and improved by a simple tutorial, which also boost junior doctor's confidence in managing patients. Furthermore, this teaching session can be easily assimilated into mandatory teaching programmes for junior doctor trainees and allied health professionals. The teaching session can be recorded to incorporate into the FY teaching programme, or as self-directed learning especially for FYs starting on an ED rotation. Limitations include the small sample size of the study which may limit the external validity of the findings and the use of two formal data collection points pre- and post-intervention due to practical issues.

CONCLUSION: Burns management is a topic in which foundation trainees lack confidence and knowledge. These issues could be addressed with a simple educational intervention, which can be shared and deployed nationally. Confidence in treating burns can be improved through increased practical experience, and ultimately improve quality of patient care delivered by junior doctors.

Applying the Modified Meek technique to heal smaller burns - a retrospective review

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction

Deep dermal and full thickness burns are typically closed with split thickness skin grafting. Meek micrografting is a technique that is well-recognised for more extensive burns, but can also have a place in managing smaller total body surface area (TBSA) burns to minimise donor site size and its associated morbidity.

Objective

We present our 9-year experience of using Meek grafting in a series of 11 cases involving $\leq 20\%$ TBSA burn injuries, and describe our method of donor area planning and surgical team delegation in order to minimise theatre time.

Methods

Cases of burns less than 20% TBSA that underwent Meek micrografting were retrospectively identified. Data on patient characteristics, operative parameters, and surgical outcomes were collected and compared to a control group of similarly sized burns that underwent conventional mesh grafting.

Results

We achieved 80.7% graft take at 4 weeks post-grafting and demonstrated 100% healing of all wounds at an average of 58.1 (31-83) days after the final Meek grafting operation.

Conclusion

Our results demonstrated that Meek grafting achieves comparable healing to conventional grafting with a similar surgical time and reduced donor size.

Factors affecting the development of gastrointestinal dysfunction in burns: a retrospective review

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction:

Gastrointestinal (GI) dysfunction is a recognised complication in intensive care, especially after major trauma like burns.¹ This study is an attempt to delineate any patterns of gastrointestinal dysfunction and potential related factors.

Methods:

After hospital audit committee approval, all patients in Burns ITU who had CT scans of the abdomen over a 5 year period beginning January 2014, were reviewed for GI dysfunction. GI dysfunction was defined as 2 consecutive high NG aspirates (>400mls) with or without radiological evidence of intestinal obstruction or ischaemia and/or requiring parenteral nutrition (PN).

Data collected included demographics, total burn surface area (TBSA), modified BAUX score, fluid input in 24/ 48 hours post-burn, inhalation injury and clinical correlates of GI dysfunction: cumulative days of GI dysfunction, CT scans, parenteral nutrition (PN), intra-abdominal pressure (IAP) measurements, laparotomy and death. We also reviewed the duration of respiratory, cardiac, renal and bone-marrow failure.

Results:

30 patients with CT abdomen were defined, 9 patients fulfilled our criteria for GI dysfunction. The TBSA was (mean +/- SD) 36 +/- 10.3%.

2 distinct phases of GI dysfunction were observed (see figure): the first phase started (mean) 3.6 days post admission and lasted (mean) 6.2 days. After a period of (mean) 4.9 days, a second phase of GI dysfunction, lasting (mean) 12.8 days was observed.

6 patients were administered parenteral nutrition (PN) at an optimum interval. Five patients had recorded IAP>20 mmHg (Grade 3 or 4 Intra-abdominal hypertension).

There was a positive correlation between high IAP and respiratory failure.

Discussion:

Early nutrition is one of the most important indices to improve mortality and morbidity in burns.² Hence GI dysfunction can have significant impact on patient's wellbeing. We noticed 2 distinct phases of GI dysfunction in all 9 patients. However we could not delineate any correlation with observed variables. We noted positive correlation with respiratory failure; this might be due to high abdominal pressures causing respiratory compromise.

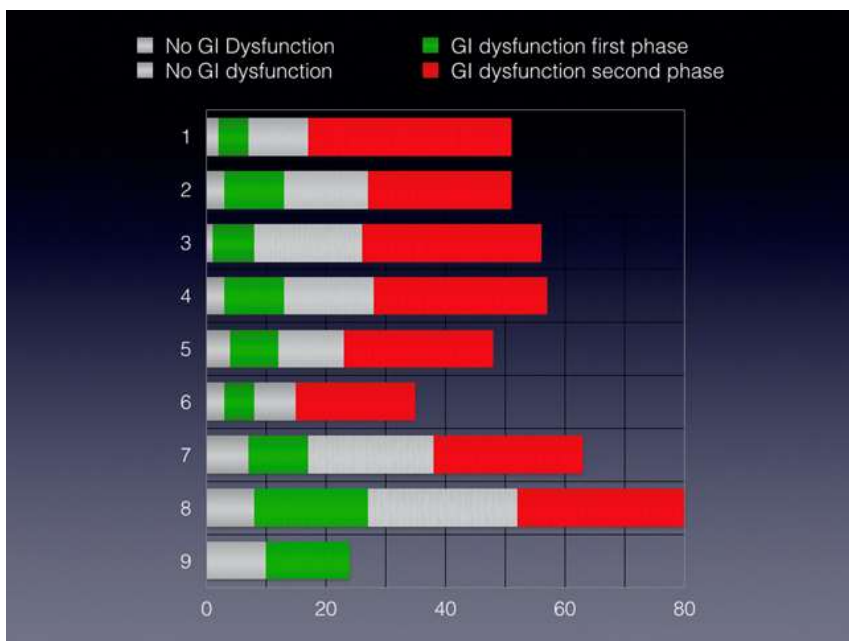
Conclusion:

This is the first description of GI dysfunction in burns occurring in 2 phases. Whilst the first may be related to the initial burns stress response and fluid shifts during resuscitation, the cause of the second phase is unclear.

We encourage others to review and report their experiences of GI dysfunction in burns to see if our 2 phase picture is typical.

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Further perspectives on burns from E-cigarette battery explosions: a public health concern

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction:

Electronic cigarettes (e-cigarettes) are a fairly recent invention which substitutes conventional cigarettes. The use of e-cigarettes is on the rise as these devices are often marketed as being a safer alternative to cigarettes. The dangers of injury from explosions are often not specified. E-cigarette battery explosions have been reported to cause burn injuries of varying severity and even death. Several case series, including systematic reviews have been published. We present the largest case series so far treated at a regional burns centre.

Purpose of study:

To evaluate e-cigarette burns treated at a regional burns centre and to identify any salient issues and points of potential intervention to reduce injury.

Methods:

A retrospective study was conducted by reviewing electronic records of e-cigarette burns in the burns database. A total of 33 burns related to e-cigarette explosions were identified between 2015 and 2020. Data collated included: patient demographics, mechanism of injury, characteristics of the burn injury, treatment, outcomes, and common themes relating to explosions.

Results:

32 patients were included after exclusion of one patient with inadequate data. 28 e-cigarette explosions occurred while the e-cigarettes were not in use; most commonly when stored in the pocket. The mechanism of injury was either flame burns or a combination of flame and chemical burn. 88% of patients were male. Thighs were the most commonly injured body part (60% of injuries) and hands were the second commonest injuries (34% of patients). The mean total body surface area (TBSA) of burn recorded was 1.99% (median 1.5%) and 7.5% being the largest burn. Most cases presented with mixed depth burns. 6 patients required surgery in the form of excision and grafting while the rest were managed conservatively. 41% of patients had underlying co-morbidities at the time of their injury. The mean time for healing was 5 weeks. The injuries impacted patients in different ways including time spent in hospital, pain, time off work and scarring. Common themes observed in our case series were reports of e-cigarettes being in contact with keys or loose change in the pockets suggesting short-circuiting as one cause for explosions

Conclusions:

Our findings have several implications, including the need to raise awareness of the dangers of e-cigarettes and education on how to avoid these incidents. Manufacturers also need to be informed in order to improve the design and safety of e-cigarettes.

Some recommendations relevant to manufactures and patients include:

1. Addition of a protective layer to the device or cases for the batteries.
2. Design of a secure case that can be attached to trouser belts to avoid storage of devices in pockets where they could come into contact with metal objects.
3. A need to increase public awareness of the dangers of these devices, especially risk of short-circuit of batteries and how to avoid this

***RUNNER UP - BEST POSTER (Research)** Exploring parents' attitudes towards taking part in paediatric burns research: development of a multi-centre cohort study of children with burns injuries**

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

(a) Introduction: More than 60,000 children in the UK experience a burn injury every year, with many experiencing scarring as a result. This scarring can be highly variable, with both long-term medical and psychological implications, and knowledge regarding predictors of scar variability is currently limited. Further research is required to explore the factors that may influence scar variability, particularly in young children, as well as the long-term psychological impact of burn injuries on children and their caregivers. As a result, researchers are currently planning a multi-centre burns cohort study to investigate genetic determinants of scarring and long-term psychosocial outcomes.

(b) Purpose of the study: An essential element of designing a multi-centre cohort study is Public Involvement (PI), in order to ensure that the research is acceptable and relevant to the target population. As part of this work, this study aimed to gain an in-depth understanding of parents' attitudes towards participation in burns research, specifically regarding a longitudinal cohort study of children with small area scalds (<10% TBSA).

(c) Methods: Semi-structured qualitative interviews were conducted with parents of children who had experienced a scald when under the age of 5 years old. Interview topics included their experiences of taking part in research and their attitudes towards a future burns cohort study. Interviews were analysed using Reflexive Thematic Analysis.

(d) Results: Sixteen parents of children with burns were interviewed. Interview transcripts were analysed and Thematic Analysis generated four themes: 'Acknowledging trauma', 'Aligning research with experience', 'Research as a reciprocal relationship', and 'Contributing to change'. Overall, these themes suggest that parents were supportive of a multi-centre burns cohort study, provide an insight into their experience of taking part in previous research, and highlight some important considerations for design of a longitudinal cohort study. These themes also provide insight into parents' attitudes towards taking part in paediatric burns research more generally, with implications for research acceptability, relevance, recruitment and retention. It is hoped that sharing these learnings, and associated recommendations, will benefit many future research studies.

(e) Conclusion: The findings of this study will be incorporated into the design of a longitudinal multi-centre cohort study of children with a burn injury and their caregivers. However, the findings also have wide reaching relevance for research in the field of paediatric burn injuries, highlighting important considerations for future studies and insight into participant retention in longitudinal research.

Preliminary experience of HDR Brachytherapy for treatment of keloid scars

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction

Keloid scars are a challenging condition to treat with a high recurrence rate with surgery; alternatives often require numerous of often prolonged clinic interventions such as intralesional injections. External beam radiotherapy is an option with a proven track record of efficacy but comes at the price of a significant radiation dose which limits its usage. Brachytherapy allows for surgical excision of keloids and delivery of radiation precisely in a manner isolated to the scar. It has a track record of success but is not widely adopted due to logistical constraints and availability.

Purpose of study:

We demonstrate our preliminary experience of HDR Brachytherapy and outcomes from two cases.

Materials and Methods:

Two patients were treated with excision of keloid and post-operative high-dose rate brachytherapy undertaken on the same day with CT imaging at the regional cancer centre. Surgical excision entailed excision with 1 mm margins and subcuticular closure over a 6F flexible polyethylene catheter. High dose rate Iridium-192 brachytherapy was administered. Total of 12 Gy in divided dose, 4 Gy in 3 fractions were administered with depth of 10mm from the axis of tube.

Results:

Two male patients with a long history of recalcitrant keloids affecting (1)the face/neck and (2)the chest, that had been treated unsuccessfully with various modalities over many years, underwent the procedure as a day case. With a follow up of greater than 12 months we have good aesthetic and symptomatic results without recurrence and high satisfaction from the patients.

Conclusion:

We describe our preliminary experience with combination of HDR brachytherapy for keloid scarring and demonstrate the technique. Our first few cases have demonstrated the potential to expand on this modality and future studies are likely to be able to demonstrate our ability to discharge patients from clinics and avoid numerous repeat interventions and appointments in favour of a single definitive technique.

Use of DERMABOND® PRINEO® Skin Closure System to optimise results of excision and direct closure in acute burns

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction

Whilst the excision and direct closure of full thickness burns has historically been felt to be contraindicated due to purported increased risk of complications, recent literature has demonstrated good results and low complications. The simplicity of direct closure and absence of a skin graft donor site is attractive if the outcome is rapid wound healing with acceptable scarring and low complications. The main concerns around direct closure have related to dehiscence. We present our own experience of direct closure along with the use of an adjunctive technique with the use of DERMABOND® PRINEO® Skin Closure System. The DERMABOND® PRINEO® Skin Closure System uses 2-Octyl Cyanoacrylate liquid adhesive plus self-adhering mesh and has been proven to provide strength, flexibility, and a microbial barrier to wounds after closure in elective surgery. This technique has been used successfully in other fields of surgery, one example being abdominoplasty surgery with benefits that have included more rapid wound closure.

Purpose of study:

To demonstrate outcomes from direct closure of a series of burns over the last 18 months, all with the ancillary use of the DERMABOND® PRINEO® Skin Closure System.

Methodology

We present a case series of 6 patients successfully treated with burn excision and direct closure with adjunctive use of DERMABOND® PRINEO® Skin Closure System. We show pre-operative, intra-operative and post-operative photographs as well as the final outcomes of 6 patients managed with this innovative technique.

Results and Discussion

All patients having direct closure of their excised burns during the timescale of this study received PRINEO, that being six patients. All direct closures were done in 2 layers with deep dermal interrupted sutures then the subcuticular technique using absorbable monofilament sutures Monocryl. All patients healed well with no complications and achieved satisfactory results with a healing time of 2 weeks. All 6 patients had reduced hospital stay, reduced dressing requirement and reduced time to healing when compared to their grafted counterparts and of course no donor site morbidity.

This study reinforces the concept that excision and direct closure is a valuable technique for the management of appropriately selected patients with full thickness burns and that furthermore the PRINEO system may be of value in limiting complications and dehiscence.

Conclusions

Our case series demonstrates that excision and direct closure can be employed safely in selected patients with full thickness burns and use of DERMABOND® PRINEO® Skin Closure System provides the potential for additional benefit by minimizing tension across the wound. This opens the door for future studies designed to directly compare direct closure with and without the PRINEO system to explore more robust evidence of efficacy which is important in light of the additional cost of using this product.

Tangential excision and skin grafting for severe chronic ulcerative allergic reaction to tattoo pigment. A case report and review of literature in the context of a European ban on coloured pigment tattoos.

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Posters - Session 6 (P84-P101), Palm Court, May 6, 2022, 11:00 - 11:40

Introduction

Tattooing is created by placing exogenous pigment particles into the dermis. A 2015 survey found that a fifth of all British adults were 'inked', with 30% of 25- to 39-year-olds having at least one tattoo. Also, tattooing is used in both medical scar management and also some burn patients use it to disguise burn scars (mostly high-street tattoos).

Our knowledge about the clinical spectrum, pathogenesis and treatment of complications from this practice is limited to few case studies or series and which has prompted ECHA (European chemical agency) to ban coloured pigments for use in tattooing.

The ban gives no grace period for red pigment use as it is the most frequently implicated in inducing various types of dermatological reactions. To further complicate matters there are case reports of Laser tattoo removal itself initiating local and more widespread allergic reactions. Burn surgery techniques may have a role as we demonstrate.

Purpose of study:

1. Share our experience with a severe case of chronic ulceration from granulomatous reaction to red tattoo pigment managed successfully with tangential excision and split skin grafting.
2. Provide perspectives on the ECHA coloured pigment ban along with literature review.

Methods

We undertook a literature review searching PubMed+Google Scholar. We excluded articles relating to temporary tattoos (henna) and black tattoos which are not a typical cause for concern.

We present a case of red pigment tattoo with appearance of chronic and delayed ulcero-necrotic allergic type reaction starting a few weeks after permanent tattooing on the right calf. Tangential excision and split thickness skin grafting was performed due to the extensive nature of disease with confirmation of the diagnosis at histopathology (excluding tuberculous granuloma). We present pre-operative, intraoperative and post-operative photographs and insights from a literature review.

Results/ Discussion

We found 634 articles but more than half were excluded. Most complications were associated with the red pigment. A variety of treatment options were suggested and almost all were non-surgical. Furthermore, laser tattoo removal occasionally caused deterioration.

We share our experience of patient who presented late with chronic and severe delayed allergic ulcero-necrotic reaction. Tangential excision with split thickness skin grafting which achieved a rapid resolution of the chronic symptoms and acceptable and improved cosmesis.

Conclusion

We describe our successful preliminary experience with tangential excision and skin grafting in delayed severe ulcero-proliferative allergic reaction to red tattoo pigment which suggests this could be a definitive treatment in similar cases as an alternative to numerous sessions of Q-switched Laser treatment - which might worsen the condition or be ineffective due to the inflammation - to quickly heal and completely remove pigment from area and result in acceptable scarring.

Characterising firework burn injuries presenting to a Regional Burns Centre over 5 years, 2017-2021

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Introduction

Fireworks have the power to delight and awe observers, but also to injure. This study characterises patients involved in firework incidents and presenting to a Regional Burns Centre for assessment and treatment, in hope that improved understanding of these injuries can contribute to prevention and service preparation.

Aims

To add to current knowledge of people at risk of sustaining firework burns, describe these injuries and illustrate how these impact on our service. A secondary aim was to investigate any changing trends.

Methods

A search was conducted of the International Burn Injury Database (iBID) for adult patients with firework injuries, between 01 January 2017 and 31 December 2021 inclusive. The full record was reviewed for demographic information, and details of the circumstances and type of burn.

Results

41 patients were identified. Of these, 34 (83%) were male and 7 (17%) were female. 27 (66%) of those affected were under 35, with 25-34 being the most common age category (n=12, 29%). In terms of ethnicity, the majority of cases (n=33) were described as British or Irish, with Pakistani the next most frequent category (n=4, 10%). Most patients (n=27, 70%) had no existing health conditions.

Firework burns were heavily clustered around autumn celebrations, with 31 (75%) taking place between 25th October and 24th November inclusive. However, only 10 injuries (24%) occurred on 5th November itself. No apparent trend was identified. Burns tended to occur in the larger urban areas in our referral area, and typically occurred at private dwellings (n=30, 73%).

Injuries sustained were minor, with Total Body Surface Area in all cases being less than or equal to 1.5%. 93% (n=38) were assessed as superficial/superficial dermal. Only 4 patients (10%) required admission, with 2 (5%) taken to theatre. The longest time to heal was 28 days (n=1) with the median being 7 days.

Discussion

The burden of firework injuries is borne predominantly by men, and even of the 7 women involved in firework burns, 5 were not personally handling the firework at the time of injury. Speculatively, social norms may play a role, with men more likely to assume the role of firework preparation in informal events, thus increasing their risk. Considering the timing and location of burns, it is clear that the vast majority occur while people are enjoying firework displays in outside spaces both at home and elsewhere, locations where risk assessments are unlikely to have taken place. This information, confirming existing knowledge, can be used to contribute to health promotion, such as via targeted awareness campaigns. Additionally, clarification of firework injury numbers to be expected specifically over the October to November period could help in service planning including staffing and supplies.

Conclusion

The average firework burn-affected patient in the referral area is a young, healthy, British man living in a city, attending an informal firework event. Further research could consider the cost impact of firework injuries to the service.