INTERNATIONAL ABSTRACTS

PREVENTION OF BURN INJURIES IN LOW- AND MIDDLE-INCOME COUNTRIES: A SYSTEMATIC REVIEW

Annually, burns result in more than 250,000 deaths and the loss of approximately 18 million disability adjusted life years (DALYs), according to World Health Organisation (WHO) figures. The vast majority of these injuries occur in low-and middle-income countries (LMICs) with devastating effects. Primary prevention strategies are high priority. In this article, the authors report the results of a systematic review of the literature indexed in PubMed, EMBASE, Web of Science, Global Health, and the Cochrane Library databases as of October 2015 to explore the effectiveness of burn prevention strategies in LMICs. Out of 12,568 potential abstracts, after multiple rounds of screening using criteria determined a priori, only 11 manuscripts were identified for inclusion. These studies demonstrate how educational programs and other initiatives such as media campaigns are effective in reducing reductions in hazardous behaviour, incidence of burns, morbidity and mortality. However, the authors conclude that original research is lacking and that further studies on prevention initiatives targeted to groups at highest risk of burns in LMICs are needed.


MULTIDRUG-RESISTANT BACTERIAL OUTBREAKS IN BURN UNITS: A SYNTHESIS OF THE LITERATURE ACCORDING TO THE ORION STATEMENT

Multidrug-resistant bacteria (MDRB) infections or colonizations are responsible for increased morbidity and mortality in vulnerable burn patients. This study reviews the literature on MDRB outbreaks in burn units according to outbreak reports and intervention studies of nosocomial infection. Following a PubMed search to identify reports on MDRB outbreaks in burn units, twenty-nine articles on such outbreaks in burn units were analyzed. A wide variety of these outbreaks were studied in terms of the microbial agents involved, length of outbreak and attack rate. The authors found methicillin-resistant Staphylococcus aureus and Acinetobacter baumannii to be the most frequent bacteria. Screening of staff revealed carrier rates of 0 to 20% in 16 studies. Environmental samples were taken in 21 studies and were positive in 14 of them. The mortality rate among infected patients varied from 0 to 33%. Implementation of isolation precautions did not always suffice, with unit closure being necessary in five outbreaks. The authors highlight a lack of consensus on how to manage these outbreaks.


THE ROLE OF RESILIENCE IN THE RECOVERY OF THE BURN-INJURED PATIENT: AN INTEGRATIVE REVIEW

Here, the authors review the evidence surrounding the role of resilience in the recovery of burn injury. Severe burn injuries are catastrophic life events resulting in significant physical and psychological effects. Often having to endure long periods of hospitalization and rehabilitation, burn survivors encounter many issues, including an altered body image and loss of function and independence that subsequently influence quality of life and the family unit. Consequently, resilience has been identified as a fundamental concept that facilitates the lengthy and complex recovery process. This integrative review was based on a systematic search of five electronic databases. Of the 89 articles identified, ten primary research papers met the inclusion criteria. Three key themes were identified encompassing relational strengths, positive coping, and the resistance to trauma symptoms that are fundamental constructs associated with developing and sustaining resilience that resonate with the broader literature on burn recovery. However, limited evidence is currently available within the burns context. The authors conclude that while resilience appears to be a vital component influencing recovery from burns trauma, it still remains a broad construct within the burns framework. Regular assessment of resilience in burn-injured patients is recommended in clinical practice in addition to longitudinal and intervention studies to best inform patient care.


WHY SO LITTLE EFFORT TO STUDY ANTI-OXIDANT THERAPY IN BURNS?

In this commentary, the author points out that the literature contains only a small number of papers devoted to the efficacy of anti-oxidant therapy in wound healing in burn-injured people. This, he states, is surprising given that the pathophysiology of oxidative stress is inherent in the pathophysiologic response to burn injury. Both the inflammatory response and the stress response to burn injury involve oxidative stress, and there has been some limited success in studies using gamma tocopherol and selenium to improve certain consequences of burns. Much remains to be done to investigate the number, doses and combinations of anti-oxidants, their efficacy, and limitations in improving defined outcomes after burn injury. He concludes that the area of anti-oxidant therapy to prevent or treat consequences of burn injury is virtually unexplored, and that it holds promise for effective adjunctive therapy if anti-oxidants are studied in a systematic and collaborative manner.

Klein G.L. Burn Trauma, 4: 29, 2016
PREDICTING MORTALITY IN BURNS: A NEW SCORING SYSTEM

On the basis of an analysis of various prognostic factors, including age, sex, TBSA, onset of SIRS, septicaemia, TLC, platelet count and grade of inhalational injury, the authors of this article have attempted to design a scoring system to help estimate the prognosis and probability of death of burn patients. They carried out a cross-sectional retrospective study on 60 patients, 30 survivors and 30 non-survivors. The aforementioned parameters were compared for the two groups, and the scoring system was designed on the basis of the six most significant parameters, namely age, TLC, platelet count, grade of inhalational injury, TBSA and presence or absence of SIRS. Each parameter was scored according to its weightage. A higher score corresponded to higher mortality. High mortality and poor prognosis was seen in patients in the higher age group, with TBSA more than 45%, and in the presence of early SIRS. The authors conclude that their death probability scoring system, which does not require sophisticated techniques, equipment and investigations, can help clinicians to foresee the course of prognosis in burn patients.

Lunawat et al.

FIRES IN REFUGEE AND DISPLACED PERSONS SETTLEMENTS: THE CURRENT SITUATION AND OPPORTUNITIES TO IMPROVE FIRE PREVENTION AND CONTROL

In this article, the authors address the increasing number of fires in displaced persons settlements. They examined academic and non-academic literature databases as well as guidelines from leading humanitarian agencies regarding fire prevention and control and retrieved 1521 records. 131 reports described settlement fires in 31 hosting countries since 1990. These incidents resulted in 487 deaths, 790 burn injuries, displacement of 382,486 individuals and destruction of 50,509 shelters. It turned out that there was a 25-fold increase in the rate of settlement fires from 1990 to 2015 (0.002–0.051 per 100,000 refugees, respectively). The authors identified gaps in humanitarian fire prevention and control guidelines. In fact, only 4 of the 15 leading humanitarian agencies provided safety recommendations. The authors conclude by suggesting a number of innovations that could prevent and control fires in camps, such as safer stoves (e.g. solar cookers) and fire retardant shelter materials. They highlight the need for consensus among aid agencies regarding fire prevention/control strategies and suggest that they engage in a broader discussion about protecting camp residents from armed groups.

Yasaman Kazerooni et al.
Burns, 42 (5): 1036–1046, 2016

PEDIATRIC FROSTBITE TREATED BY NEGATIVE PRESSURE WOUND THERAPY

This case study involved three patients (aged 16–31 months) who had frostbitten hands due to being outside in very cold weather without gloves. Frostbite injury in children can lead to abnormal growth and premature fusion of the epiphyseal cartilage with long-term sequelae including, but not limited to, arthroses, deformity and amputation of the phalanges. This was a retrospective chart review of pediatric frostbite identified in an in-house burn center registry from March 1999 to March 2014. Management of the three patients included negative pressure wound therapy (NPWT). They presented within 24 hours after injury, underwent 5–6 days of NPWT after excision of blisters, and did not lose the distal portion of their digits or require amputations. On follow-up, all hands were healed well with only minimal or no effect on the growth plate of these pediatric patients. The authors conclude that in the early period after frostbite, NPWT may be beneficial in preserving the epiphyseal cartilage in children and preventing long-term complications.

Poulakidas, SJ et al.

“HOPE AFTER FIRE”: A FREE RECONSTRUCTIVE SURGERY PROJECT FOR BURN SURVIVORS. MAKING IT POSSIBLE AND THE LESSONS LEARNED

This article from India describes the “Hope after fire” project, which was started as a joint initiative of the Plastic Surgery Department of Ganga Hospital, Coimbatore and the Rotary Club of Coimbatore Metropolis to provide free reconstructive surgery to burn patients. Post-burn deformities can cause loss of livelihood and a sense of self-worth. Though many can be corrected, allowing the patients to lead a productive life, tragically many of these patients who need help are not in the service loop. The reasons for this include problems of affordability, reach or the lack of skill levels needed for difficult problems. Between 2012 and 2015, 304 reconstructive procedures were done in 192 patients with a project value of Rs. 1.08 crores (US $ 166,000). The authors believe that this success is reproducible. In this article, they discuss a number of factors, including a patient-centric attitude, the commitment of the people involved in the project to reach their goal, rehabilitation as well as surgical efforts, and transparency and trust between partners, which they regard as the keys to success.

Shanmuganathan Raja Sabapathy et al.
Indian Journal of Burns, 23(1): 3-8, 2015

FLUID RESUSCITATION MANAGEMENT IN PATIENTS WITH BURNS: UPDATE

Since 1968, when Baxter and Shires developed the Parkland formula, little progress has been made in the field of fluid therapy for burn resuscitation, despite advances in haemodynamic monitoring, establishment of the ‘goal-directed therapy’ concept, and the development of new colloid and crystalloid solutions. Burn patients receive a larger amount of fluids in the first hours than any other trauma patients. Initial resuscitation is based on crystalloids because of the increased capillary permeability occurring during the first 24 h. After that time, some colloids, but not all, are accepted. Since the emergence of the
Pharmacovigilance Risk Assessment Committee alert from the European Medicines Agency concerning hydroxyethyl starches, solutions containing this component are not recommended for burns. But the question is: what do we really know about fluid resuscitation in burns? To provide an answer, the authors carried out a non-systematic review to clarify how to quantify the amount of fluids needed, what the current evidence says about the available solutions, and which solution is the most appropriate for burn patients based on the available knowledge.

P. Guilabert et al.

PREPAREDNESS AND TRAINING IN STAFF RESPONDING TO A BURNS DISASTER

This article reports the results of a six-question survey delivered to staff involved in the hospital response to a burns mass disaster in Western Australia. Effective disaster response is preceded by effective disaster planning, and insufficient staff training has been identified as a problem in the preparation of hospitals for major incidents. Despite this, little is known about the exact levels of training doctors and nurses responding to a disaster receive. The occupation, and also the clinical area in which the respondent worked, influenced the level of training they received. The authors conclude that training in formal disaster courses and practical exercises in mock disaster situations needs to be ongoing for all staff members for correct implantation of disaster plans. Findings may be useful in informing current and future efforts to improve hospital preparedness.

Jolyon May et al.
British Journal of Nursing, 24(19), 2015

THE SPEECH-LANGUAGE PATHOLOGIST’S ROLE IN MULTIDISCIPLINARY BURN CARE: AN INTERNATIONAL PERSPECTIVE

This article looks at the role of the speech-language pathologist (SLP) within burn care. A 17-item online survey designed by two SLPs experienced in burn care investigated the availability and scope of practice for SLPs associated with burn units. The aim was to explore international practices of speech-language pathology within burn care in order to provide direction for education, training and clinical practice of the burns multidisciplinary team (MDT). The survey was distributed among burn associations, and was completed by 240 health professionals from 6 different continents (37 countries). The authors found that referral criteria for SLP were largely uniform across continents. The most dominant area of SLP practice was assessment and management of dysphagia, which was conducted in concert with other members of the MDT. The authors conclude that the role of SLP is still emerging, and that there is potential for increased SLP involvement in burn care.

A.F. Rumbach et al.

TRANSFER BETWEEN AN ALGERIAN AND A FRENCH HOSPITAL OF FOUR MULTI-DRUG RESISTANT BACTERIAL STRAINS TOGETHER VIA A SINGLE PATIENT

This report from France describes a case of a patient harboring four multi-drug-resistant bacterial strains. A 5-year-old girl, seriously burnt in a fire, was hospitalized for four days in an Algerian hospital before being transferred to an intensive care burns unit in Paris. She had third degree burns covering 78% total body surface area. She had already been treated with imipenem and vancomycin. The patient’s clinical condition rapidly worsened and she died within 24 hours of her arrival. Cultures of blood and multiple wound swabs yielded 3 multi-drug resistant bacterial strains: *Acinetobacter baumannii* with carbapenemase OXA-23, *Pseudomonas aeruginosa* serotype O11 with metallo-β-lactamase VIM-4 and *Klebsiella pneumoniae* with CTX-M-15 extended-spectrum β-lactamase. Culture of a rectal swab showed colonization by *Enterococcus faecium* with vanA glycopeptides resistance. Patients colonized with one or two multi-drug-resistant strains are not rare in this burns unit, especially those transferred from Algeria. Four multi-drug resistant strains in a single patient, however, is exceptional.

Didier Moissenet et al.
Int J Burns Trauma, 5(3): 82-85, 2015

EXPLORING THE ACCEPTABILITY OF A CLINICAL DECISION RULE TO IDENTIFY PAEDIATRIC BURNS DUE TO CHILD ABUSE OR NEGLECT

An evidence based clinical decision rule (CDR) was developed from a systematic review and epidemiological study to identify burns due to child maltreatment (abuse or neglect). The authors’ aim was to explore clinicians’ views of the CDR, the likelihood that it would influence their management and factors regarding its acceptability. A semi-structured questionnaire exploring demographics, views of the CDR and data collection pro forma, ability to recognise maltreatment and likelihood of following CDR recommended child protection (CP) action, was administered to 55 doctors and nurses in eight emergency departments and two burns units. Recognition of maltreatment was assessed via four fictitious case vignettes. The majority of participants found the CDR and data collection pro forma useful (45/55, 81.8%). Only five clinicians said that they would not take the action recommended by the CDR (5/54, 9.3%). Lower grade doctors were more likely to follow the CDR recommendations (p=0.04) than any other grade, while senior doctors would consider it within their decision making. Factors influencing uptake include: brief training, background to CDR development and details of appropriate actions. The authors conclude that clinicians are willing to use a CDR to assist in identifying burns due to child maltreatment. However, an implementation evaluation must encompass the influential variables identified to maximise uptake.

E.L. Johnson et al.
CLINICO-EPIDEMIOLOGICAL STUDY OF BURNS: OUR EXPERIENCE WITH 500 PATIENTS

Burn injury represents one of the most important public health problems faced by both industrialized and developing countries. The epidemiological factors of burn injury vary in different regions and countries. The aim of this study was to determine the etiology of burns, analyze the epidemiological features, and study the factors contributing to the mortality of burn patients in India. This prospective descriptive study was conducted in the department of surgery at a tertiary care teaching hospital in Solapur from January 2011 to December 2013. Five hundred burn patients were included in the study. The results revealed that the most commonly affected age group was 21 to 40 years. Females were more commonly affected than males. The majority of burn injuries occurred in rural areas and were accidental, flame most often being the cause. More burns occurred during the winter season, and between 5 pm to 11 pm. Labourers were more commonly affected. The majority of burn injuries occurred at home and most of the patients were illiterate. The authors conclude that burns are preventable and public health programmes on various etiological factors and their preventive measures are necessary.

A.N. Maske et al.

THE IMPACT OF PATIENT DEMOGRAPHICS AND COMORBIDITIES UPON BURNS ADMITTED TO TYGERBERG HOSPITAL BURNS UNIT, WESTERN CAPE, SOUTH AFRICA

In South Africa, burns are a major public health problem responsible for significant morbidity and long-term physical disability. This is, in part, due to a significant proportion of the urban population living in poorly constructed, combustible accommodation. The presence of co-morbid diseases such as diabetes and malignancy in patients with burns has been associated with a poorer outcome. The impact of other diseases such as HIV has yet to be defined. A retrospective data collection study analysed the 221 patients admitted to Tygerberg Hospital Burns Unit in 2011 and the first six months of 2013. Using hospital records, patient demographic data was collected alongside burn agent, ICU admission, complications, and patient outcome in terms of length of stay and mortality. The most common burn agent was hot liquid (45.7%). A significant proportion of patients were subject to intentional attacks (34.3%). Shack fires and flame accounted cumulatively for 85% of total inhalational burns, the highest rates of admission to ICU (85.5%), the highest rate of complications, as well as 92.3% of all total fatalities. HIV+ patients had a higher mortality (13.3% vs 5%, p=0.22) and a higher complication rate (46.7% vs 30%, p=0.21). There was no difference in length of stay between the HIV+ and HIV- cohort (12 days vs. 15.5 days, p=0.916). Burns are a significant yet preventable cause of mortality and morbidity. The rising number of shack fires, responsible for extensive burns and resultant mortality is concerning and indicates urgent attention and action. HIV complicates the recovery from burn and is responsible for an increased rate of in-hospital mortality.

T. Cloake et al.

BURN CARE ON CRUISE SHIPS - EPIDEMIOLOGY, INTERNATIONAL REGULATIONS, RISK SITUATION, DISASTER MANAGEMENT AND QUALIFICATION OF THE SHIP’S DOCTOR

With the increasing numbers of passengers and crew on board vessels that are becoming larger and larger, the demand for ship’s doctors who can adequately treat burns on board has also increased. In the cruise ship industry it is usually those doctors with internal and general medical training who are recruited from an epidemiological point of view. Training content or recommendations for the treatment of thermal lesions with the limited options available in ship hospitals and where doctors with no surgical training operate do not yet exist. The guidelines recommended by the Cruise Lines International Association (CLIA) regarding medical staff have only included physicians with minor surgical skills until now. With the introduction of the ATLS® course developed by the American College of Surgeons, the requirements for the qualification of ship’s doctor on board cruise ships will change from January 2017. The article discusses the question of whether having completed the ATLS® course, the ship’s doctor is trained to adequately treat thermal lesions or severe burns on-board, and presents the current discussion on the training content for ship’s doctors within the International Maritime Health Association (IMHA). It also provides an overview of existing international regulatory frameworks, the risks presented by a fire on board, the problem of treating burn victims out of reach of coastal rescue services, and alternative training concepts for ship’s doctors regarding the treatment of thermal lesions on-board.

C. Ottomann et al.
Burns, 42 (6): 1304-1310, 2016

PAEDIATRIC BURN UNIT IN PORTUGAL: BEDS NEEDED USING A BED-DAY APPROACH

Despite the high burden of children with burns, there is no paediatric burn unit (PBU) in Portugal. The aim of the authors of this article was to estimate Portuguese health care needs regarding paediatric burns. They performed a nation-wide retrospective study, between 2009 and 2013, of under 16-year-old inpatients with burns that met the transfer criteria to a burn unit in Portugal. A bed-day approach was used, targeting an occupancy rate of 70–75%, and possible locations were studied. The primary outcome was the number of beds needed, and secondary outcomes were the overload and revenue for each possible number of beds in a PBU. A total of 1155 children met the transfer criteria to a burn unit, representing a total of 17,371 bed-days. Occupancy rates of 11-bed, 12-bed, 13-bed and 14-bed PBU were, respectively, 79.7%, 75.3%, 71.0% and 66.8%. The 13-bed PBU scenario would represent an overload of 523 bed-days, revenue of more than 5 million euros and a ratio of 1 PBU bed per 123,409 children. The authors concluded that the optimal number of PBU beds needed in Portugal is 13. The preferred location for a PBU is Porto.

J.V. Santos et al.
Burns, 2016. DOI: http://dx.doi.org/10.1016/j.burns.2016.08.014