INTERNATIONAL ABSTRACTS

A SUCCESSFUL LIMB SALVAGE OF AN ELECTRICAL BURNED PATIENT WITH EXTENSIVE SOFT TISSUE AND FEMORAL BONE NECROSIS

In this article the authors describe the limb salvage procedure they followed for a patient who suffered extensive soft tissue and femoral bone necrosis following a high-voltage electrical burn injury. The patient suffered burns to the right thigh and knee, which resulted in large areas of muscle necrosis and a long segment of distal femur exposure. Complete debridement of the area resulted in a 20 × 35 cm soft tissue defect and an 18-cm long distal femoral bone defect. The wound was repaired with latissimus dorsi muscle transplantation and bone reconstruction using the sequential Ilizarov osteogenesis method. The patient retained the injured limb, and functional recovery of the leg was satisfactory. The authors conclude that the combination of flap transplantation and the Ilizarov osteogenesis method is a good option for the treatment of large soft tissue and huge segmental bone defects.


CURRENT TRENDS IN PRACTICE FOR EARLY MOBILITY WITH THE BURN POPULATION

This aim of this study was to determine current mobility practices and the influence of skin graft surgery on clinical decisions to mobilize patients. A 32-question survey was electronically distributed to burn clinicians. The survey questions regarded postoperative range of motion (ROM) and out of bed (OOB) mobility practices for various skin graft types and locations. For all graft types on all body locations, the average time for patients to resume ROM activities after skin graft surgery was postoperative day (POD) 3.87 (±2.04) and for OOB mobility POD 2.54 (±1.38). There was significantly greater variability for OOB mobility compared to ROM. Time to postoperative ROM was significantly different depending on type of skin graft, with sheet skin grafts resuming ROM the earliest. Time to OOB mobility after surgery was significantly different for different body locations, with grafts placed above the waist resuming OOB mobility the earliest. The authors conclude that this study represents a starting point for future studies investigating the optimal timing and practical application of mobility protocols that may influence the safety and outcome of burn survivors.

Parry I et al. J Burn Care Res, 40(1): 29-33, 2019

RACIAL AND ETHNIC DISPARITIES IN DISCHARGE TO REHABILITATION FOLLOWING BURN INJURY

The aim of the authors of this paper from the USA was to determine if there were racial disparities in the discharge destination (inpatient rehabilitation, skilled nursing facility, home with home health, or home) of burn patients admitted to UNC Jaycee Burn Center in North Carolina from 2002 to 2012. Patient characteristics including age, gender, burn mechanism, insurance status, percentage total body surface area (%TBSA) burned, presence of inhalation injury and length of hospital stay were recorded. The patients were then categorized according to three mutually exclusive racial or ethnic groups: White, Hispanic or Black. Results showed that Black patients were more likely and Hispanics less likely than White patients to be discharged to a higher level of rehabilitation. The authors conclude that racial and ethnic disparities in discharge destination to a higher level of rehabilitative services among burn-injured patients do exist, particularly for Hispanic patients but not for Black or White burn patient groups. Further studies are needed to elucidate the potential sources of these disparities.

Bartley CN et al. J Burn Care Res, 40(2): 143-147, 2019
Tracheostomy and Mortality in Patients With Severe Burns: A Nationwide Observational Study

The aim of this study was to determine whether tracheostomy can reduce mortality in patients with severe burns. Using the Japanese Diagnosis Procedure Combination database from April 2010 to March 2014, the authors extracted data on adult patients with severe burns (burn index score of $\geq 15$) who started mechanical ventilation within 3 days of admission. They estimated the hazard ratio for 28-day in-hospital mortality associated with tracheotomy performed from day 5 to 28. They identified 680 eligible patients (94 in the tracheostomy group, 2289 person-days; 586 in the non-tracheostomy group, 11,197 person-days). Patients who underwent a tracheostomy had worse prognostic factors for mortality. After adjustment for these factors, the hazard ratio for 28-day mortality associated with tracheostomy compared with non-tracheostomy was 0.73 (95% confidence interval, 0.39–1.34). The authors concluded that there was no significant association between 28-day in-hospital mortality and early tracheostomy in adult patients with severe burns.

Tsuchiya A.
Burns, 44(8): 1954-1961, 2018

Burn-Induced Neuroepithelial Changes as a Delayed Cause of Mortality in Major Burns: A Case Report and Literature Review

Brain lesions in burn patients are rare and predominantly traumatic in nature. In this paper the authors present an unusual case of burn-induced glioma causing rapid neurological deterioration and death. A 33-year-old male, with 85% total body surface area (TBSA) flame burns, presented initially with inhalation injury and acute compartment syndrome with no other associated injuries. Based on the initial assessment, the patient’s cognitive status was not affected, with a Glasgow coma scale (GCS) on admission of 15/15 and normal brain computed tomography (CT) images. The patient was resuscitated and immediately admitted to the burns unit where he underwent multiple sessions of debridement and skin grafting. The patient’s neurological status deteriorated dramatically, and brain magnetic resonance imaging (MRI) confirmed the presence of a heterogenous mass, highly suggestive of a high-grade glioma, that was not present during the initial assessment. The patient died shortly afterwards as a result of cardiac asystole. The authors conclude that this case supports the notion that high-grade gliomas can progress rapidly in immunocompromised patients, thus further reducing survival rates. Therefore, patients with inflammatory conditions combined with neurological symptoms/signs should be investigated thoroughly to evaluate the presence and extent of this pathology.

Obeid DA
Int J Burn Trauma, 8(6): 145-148, 2018

The Effect of Burn Trauma on Lipid and Glucose Metabolism: Implications for Insulin Sensitivity

Greater emphasis is now placed on understanding the metabolic stress response to severe burn trauma in order to devise strategies that promote recovery and reduce morbidity. Derangements in metabolism, including protein and lipid redistribution and altered glucose handling, are hallmarks of the pathophysiological response to burn trauma. In this review article, the authors look at current literature on the effects of burn trauma on lipid and glucose metabolism. Furthermore, they discuss the implications of altered lipid metabolism with regards to insulin sensitivity and glucose control, while discussing the utility of agents and strategies aimed at restoring normal lipid and glucose metabolism in burned patients.

Clayton RP et al.
J Burn Care Res, 39(5): 713-723, 2018
SEPSIS 3 AND THE BURNS PATIENT: DO WE NEED SEPSIS 3.1

Sepsis is a significant cause of additional morbidity and mortality in the burns patient, although most studies conducted on sepsis have excluded burns sufferers. Sepsis-related multiple organ failure is often associated with mortality in the burns patient. Many sepsis-like clinical manifestations in the burns patient are often normal or expected for the burns population, despite the presence of physiological parameter derangement that would normally alert the clinician to the potential for sepsis in other patient groups. The identification of sepsis in burns patients has required modifications of the standard definitions, due to the peculiarities of this population subset. To understand the relevance to adult burns patients of the evolving definitions of sepsis, the authors review the successive versions of the consensus definitions and consider their applicability to this population.

Tridente A
Scars, Burns & Healing, 4, 2018

THE LONG-TERM IMPACT OF SEVERE BURN TRAUMA ON MUSCULOSKELETAL HEALTH

Severe burn injury causes a profound stress response that leads to muscle and bone cachexia. Evidence suggests that these deficits persist for several months or even years after injury and are associated with growth delay, increased incidence of fractures, and increased hospital admissions for musculoskeletal disorders. Thus, there is an overwhelming need to determine the optimal acute and rehabilitative strategies to mitigate these deficits and improve quality of life for burn survivors. To date, there is limited research on the long-term impact of cachexia on functional performance and overall health, as well as on the lasting impact of pharmacological, nutritional and exercise interventions. The aim of this review was to emphasize the long-term consequences of musculoskeletal cachexia and determine the best evidence-based strategies to attenuate it. The authors also underline important knowledge gaps that need to be addressed in order to improve care of burn survivors.

Polychronopoulou E et al.
J Burn Care Res, 39(6): 869-880, 2018

CHANGING THE WAY WE THINK ABOUT BURN SIZE ESTIMATION

The authors of this article conducted a systematic literature review on PubMed, Scopus, Google Scholar, OvidSP Medline and Web of Science of articles on burn size estimation. Twenty-six relevant articles identified pervasive TBSA miscalculations ranging from 5% to 339% regardless of provider level. They also revealed that <20% TBSA burns are being disproportionately overestimated, meaning that up to 77% of burns are being inappropriately transferred to burn centres from referring hospitals, which has its own associated costs. One factor that contributes to TBSA mis-estimation is the improper use of TBSA estimation tools (palm, hand, Rule of 9s). The authors conclude that a lack of data remains, and larger studies are needed to clarify the clinical impact of these errors. They suggest that a systematic approach with telemedicine-facilitated computer-based burn assessments is required.

Pham C et al.
J Burn Care Res, 40(1): 1-11, 2019

A NEW INJURY PREVENTION TARGET: SUMMER HAIR BRAIDS

In this article, the authors discuss the increasingly common presentation at their paediatric burn centre of scald injuries caused by hair braiding. In order to guide prevention, the study aims to characterize this mechanism of injury and identify patterns underlying its frequency. A retrospective cohort analysis was performed on all cases of scald injury due to hair braiding in African-American girls treated at their burn centre from 2000 to 2016. Data were gathered from patient medical records to determine demographics, details of the injury, and treatment given. Patterns of injury frequency were iden-
tified and statistically analyzed. These injuries resulted in considerable usage of medical resources, including ambulance transport, hospital admission, clinic visits, prolonged wound care and surgery. The authors conclude that paediatric scald injuries caused by braiding practices are morbid, are becoming increasingly frequent, tend to occur in the summer, and may be related to a new do-it-yourself style trend among African-American girls.

Ramirez JI et al.  
J Burn Care Res, 39(6): 911-914, 2018

**GLUCOCORTICOID SUPPRESS FIBROBLAST APOPTOSIS IN AN IN VITRO THERMAL INJURY MODEL**

To investigate the underlying mechanisms of burn wound progression and prevent cell death of heat-injured fibroblasts, the authors developed an *in vitro* experimental model of heat-injured fibroblasts. They confirmed that heating at 55 °C for 30 s caused fibroblast necrosis immediately after heating, whereas heating at 46 °C for 30 s induced apoptosis 24 h after heating. They also found that the supplementation of 100 ng/ml betamethasone to the culture medium after heating decreased the number of apoptotic cells and increased that of live cells. They conclude that their studies suggest glucocorticoids suppress apoptosis of heat-injured fibroblasts and may be useful for preventing burn wound progression.

Matsuura Y et al.  
Burns, 45(1): 173-170, 2019

**GENDER HAS NO INFLUENCE ON MORTALITY AFTER BURN INJURIES: A 20-YEAR SINGLE CENTRE STUDY WITH 839 PATIENTS**

The purpose of this study was to evaluate gender-specific differences among burn patients with special regard to burn mortality. The authors retrospectively studied 839 patients admitted to the Burn Intensive Care Unit (BICU) of the Vienna General Hospital in Austria who underwent surgical treatment between June 1994 and December 2014. In-hospital mortality was the main clinical endpoint. Odds ratios (ORs) were calculated using univariate and multivariate logistic regression models for the association between sex and mortality. All patients had at least partial-thickness burns and underwent one or more surgeries. The women were significantly older than the men. Burn mortality among women significantly differed from that of men, despite the former having smaller injuries. This association, however, did not persist after adjusting for age, %TBSA, inhalation injury and full-thickness. The authors conclude that despite increasing research directed at women’s health, the association between gender and burn mortality continues to yield conflicting results. The results of their own study do not support a gender-specific difference in burn mortality.

Ederer IA et al.  
Burns, 45(1): 205-212, 2019