INTERNATIONAL ABSTRACTS

DAKIN’S SOLUTION: “ONE OF THE MOST IMPORTANT AND FAR-REACHING CONTRIBUTIONS TO THE ARMAMENTARIUM OF THE SURGEONS”

In this article, the authors recount the life story of Henry Drysdale Dakin, exploring his unique scientific career and his contributions to surgical literature. The article illustrates how a wartime necessity resulted in a medical discovery that is still in use today. Dakin’s solution was incepted during World War I in an international collaboration spearheaded by the scientist to create and universalize an antiseptic utopia. Dakin investigated over 200 different antiseptic substances to finally conclude that a 0.5% buffered sodium hypochlorite solution satisfied his criteria for an ideal antiseptic. It would save thousands of lives during World War I and diminish functional disabilities from wounds. Dakin’s solution continues to be a “far-reaching armamentarium” of surgeons and wound care specialists around the globe.

Georgiadis J et al.
Burns 45(7): 1509-1517, 2019

THE RELATION BETWEEN POSITIVE SCREENING RESULTS AND MRSA INFECTIONS IN BURN PATIENTS

The authors of this article from Canada examine the relation between MRSA screening swab cultures taken within 48h of admission, weekly surveillance cultures, and MRSA infection secondary to colonization. Burn patients are at increased risk of MRSA infection due to several factors, including partial loss of the skin barrier, the immune-compromising effects of burns, prolonged hospital stays, and invasive procedures. The data of 396 burns patients admitted to the referral centre from 2012 to 2016 were reviewed. MRSA cultures taken at admission and on weekly surveillance screening, including nasal, perianal, and wound swabs, were reviewed. To determine associations between MRSA colonization and infection rates, both MRSA-positive and MRSA-negative swab cultures were included in the analysis. Results showed that over 60% of patients who had a positive swab culture at surveillance developed an infection. None of the patients with a negative MRSA swab status developed an infection. The authors conclude that pragmatic prevention strategies need to be implemented.

Pangli H & Papp A
Burns 45(7): 1585-1592, 2019

THE ROLE OF COMORBIDITIES IN THE PROGNOSIS OF THERMAL BURNS

The Charlson Comorbidity Index (CCI) is used to measure the effect of comorbidities. The score helps to predict the 10-year mortality of patients with a range of comorbid conditions. In this paper the authors present the results of a retrospective analysis of burn patients admitted to their burns centre over 1 year, their aim being to understand the role of comorbidities on the outcome of thermal burns in terms of mortality. A total of 18 patients with comorbidities fulfilled the inclusion criteria. Ten patients survived, while eight patients succumbed to their burn injuries. The average CCI of the survivor group was 2.2 (range: 1–4), whereas the mean CCI of the non-survivor group was 3.5 (range: 2–6). The authors conclude that comorbidities do have an impact on the prognosis of a burn patient, and objective assessment of prognosis of the burn injury must include the CCI as a tool to predict outcome.

Aggarwal A et al.
Indian J Burns, 27: 16-9, 2019
NURSING PROBLEMS IN PATIENTS WITH TOXIC EPIDERMAL NECROLYSIS AND STEVENS-JOHNSON SYNDROME IN A DUTCH BURN CENTRE: A 30-YEAR RETROSPECTIVE STUDY

The objective of the authors of this article was to assess problems regarding the nursing care of TEN patients in a burn centre in the Netherlands over a 30-year period. Data for the study were gathered retrospectively from nursing records of all patients with TEN/SJS admitted to the Burn Centre Rotterdam between January 1987 and December 2016. The most frequently reported nursing problems were wounds, threatened or disrupted vital functions, dehydration or fluid imbalance, pain, secretion problems and fever. Furthermore, TEN-specific nursing problems were documented, including oral mucosal lesions and ocular problems. The highest number of concomitant nursing problems occurred between day 3 and day 20 after onset of the disease. Given these findings, the authors advocate starting nursing interventions early in the treatment, addressing problems at the first sign, and informing patients and their families or relatives of these issues early in the disease process.

Trommel N et al.
Burns 45(7): 1625-1633, 2019

THROMBOLYTIC SALVAGE OF THREATENED FROSTBITTEN EXTREMITIES AND DIGITS: A SYSTEMATIC REVIEW

The authors of this paper from the USA performed a systematic review to determine whether thrombolytic therapy is effective in salvaging frostbitten extremities, and to identify patients who may benefit from this treatment. The Pubmed, EBSCO, and Google Scholar databases were queried using the key words “thrombolytics,” “frostbite,” “fibrinolytics,” and “tPA.” Studies written after 1990 in English met the inclusion criteria. Forty-two studies were identified and 17 were included, namely 1 randomized trial, 10 retrospective studies, 2 case series, and 4 case reports. One thousand eight hundred and forty-four limbs and digits in 325 patients were studied: 216 patients were treated with thrombolytics and 346 amputations were performed. The most common means of thrombolysis was intra-arterial tPA. The most common duration of therapy was 48 hours. Limb salvage rates ranged from 0% to 100% with a weighted average of 78.7%. The authors conclude that thrombolytics are a safe and effective treatment for severe frostbite. They prevent otherwise inevitable amputations warranting both greater utilization and further research to clarify the ideal thrombolytic protocol.

Drinane J et al.
J Burn Care Res, 40(5): 541-549, 2019

PREDICTIVE BIOMARKERS FOR ACUTE KIDNEY INJURY IN BURN PATIENTS

In this study from Iran, the authors aimed to identify predictive biomarkers in order to prevent AKI incidence and sudden death in burn victims. In this retrospective study, they evaluated 258 burn patients admitted to the burn centre in Shiraz from January 2016 to February 2018. Out of 258 patients, AKI was detected in 40 (15.50%), with an estimated mortality rate of 76.9%. Among all the variables, total BSA ($P = .01$), blood urea nitrogen (BUN; $P = .001$), potassium ($P = .02$), and mortality ($P = .03$) were significantly different in AKI development. Moreover, AUC of serum creatinin, albumin, and BUN as predictive biomarkers were 0.73, 0.44, and 0.707, respectively. Among all the variables, BUN marker was independently associated with AKI development. The authors conclude that early diagnosis and identifying the biomarkers is essential for preventing sudden death in burn patients.

Ememi A et al.
J Burn Care Res, 40(5): 601-605, 2019
A CASE OF EXTENSIVE BURN INJURY WITH HYPERCALCEMIA CAUSED BY CALCIUM ION ABSORPTION FROM THE WOUND DRESSING

In this case report from Japan, the authors describe a rare case of acute hypercalcemia caused by silver-containing calcium alginate fibres used as a dressing for a patient with extensive burn injury. The patient had been treated with oral calcium formulation because of hypocalcemia. Silver-containing calcium alginate fibres were applied to the raw surface area after the first skin grafting surgery, and blood calcium levels continued to rise up to 15.4 mg/dl even after discontinuation of oral calcium preparations. Cessation of the use of the dressing resulted in a sharp drop in blood calcium levels. Therefore, the authors concluded that the cause of the hypercalcemia was the absorption of calcium ions eluted from the silver-containing calcium alginate fibres. They suggest that dressing materials containing calcium alginate fibres may cause hypercalcemia in patients with extensive burns, and recommend that physicians be attentive to the dressings they use in burn wound care.

Asai H et al. Burns Open, 2019, doi.org/10.1016/j.burnso.2019.11.003

LASER MANAGEMENT OF HYPERTROPHIC BURN SCARS: A COMPREHENSIVE REVIEW

In this review, the authors describe the evolution of laser therapy for hypertrophic burn scars, how different types of lasers work, indications, perioperative considerations and guidelines for practice management. They then present a number of cases in order to outline their own experience treating hypertrophic burn scars with different combinations of lasers. Hypertrophic scars often develop following burn-related injuries. These scars can be cosmetically unappealing, but associated symptoms of pruritus, pain and restricted range of motion can impair a person’s quality of life. The authors conclude that laser and light therapies offer a minimally invasive, low-risk approach to treatment, with a short postoperative recovery period. As laser technology has developed, studies have shown decreased scar thickness, neuropathic pain and need for surgical excision, as well as improved scar pigmentation, erythema, pliability, texture, height and pruritus.

Klifto KM et al. Burns & Trauma, 8(1), 2020, doi.org/10.1093/burnst/tkz002

“NAMASTE FLAP” - MODIFICATION OF SUBCUTANEOUS PEDICLE PROPELLER FLAPS IN THE RECONSTRUCTION OF POSTBURN AXILLARY AND ELBOW CONTRACTURES

In this article the authors examine the use of the “Namaste flap” in the reconstruction of postburn axillary and elbow contractures. This is a prospective case study conducted at a tertiary care hospital in India from 2010 to 2016. The surgical technique involved raising a 2-limbed subcutaneous pedicle-based propellor flap over the contracture using the unburnt skin at the axillary and cubital fossa. Nine patients were included in the study. The mean degree of contracture in axilla and elbow was 78.3 degrees and 59.1 degrees, respectively. The functional results postoperatively were satisfactory. The mean postoperative degree of joint movements in axilla and elbow was 176.3 degrees and 173.6 degrees, respectively. No major complications were encountered. The authors conclude that in cases where normal skin is still present on the axillary and cubital fossa with scar contracture caused by extensive burns, the subcutaneous propeller flap methods and their modifications should be considered one of the most useful versatile reconstruction methods.

THE USE OF A NON-MEDICATED DRESSING FOR SUPERFICIAL-PARTIAL THICKNESS BURNS IN CHILDREN: A CASE SERIES AND REVIEW

This article reports the results of using the dressing Cutimed® Sorbact® on superficial-partial thickness burns in children. To find out how effective this dressing is, the authors conducted a four-week study in a South African Hospital, which involved ten children aged < 10 years with a \(\leq 15\%\) superficial-partial burn. The primary outcome measure was time to 95% re-epithelialisation. Secondary outcome measures included wound complications, adverse healing and number of dressing changes. The study found that 50% of children’s burns healed within seven days and 100% healed within 21 days. There was one complication that was resolved and children stayed in hospital for an average of five days. The authors conclude that Cutimed® Sorbact® is a safe, useful and cost-effective dressing that should be used as an alternative for superficial-partial burns in children.

Kusu-Orkar T et al.
Scars, Burns & Healing, 5, 2019

DEVELOPMENT AND EVALUATION OF MEDICATED BIODEGRADABLE FILM FOR WOUNDS AND BURNS

In this paper the authors describe their efforts to develop a biodegradable medicated film for wound healing using chitosan and HPMC as polymers. The drug used was silver sulfadiazine. An animal wound model was performed on the back of the rats and treated, respectively, with medicated biodegradable film and with a marketed product. There were no infections found during the period of study. The wound treated with the medicated film formulation healed within 6 days, but the one treated with the marketed cream did not. The authors conclude that medicated films could be a good alternative to conventional wound dressings. The film adheres to open wounds, and therefore is good protection, providing a moist healing environment. Better patient compliance is an added advantage as it does not require repeated application.

Anuroop UP et al.
IJPSR, 10(12): 5664-5672, 2019

A SIX-YEAR STUDY ON EPIDEMIOLOGY OF ELECTRICAL BURNS IN NORTHERN IRAN: IS IT TIME TO PAY ATTENTION?

The authors of this paper report the results of a descriptive cross-sectional study of all patients with electrical burn injuries admitted to Velayat Hospital, Rasht, Iran, over a six year-period (2011-2016). They found that most electrical burns occurred in men (99.4%), most of whom had electricity-related jobs (26%). The majority of victims had third-degree burns (63%). Most burns happened due to abrupt contact with electrical current (83.33%) in routine home activities (52.78%). Most people were affected by high voltage electricity. The authors conclude that burn prevention should be top priority, and government programs should focus on the safety and proper management of electrical appliances. Occupational safety acts must be revised, and employers must respect these regulations.

Tolouie M & Farzan R
WJPS, 8(3): 365-371, 2019