INTERNATIONAL ABSTRACTS

EVALUATION OF A NEW TYPE OF WOUND DRESSING MADE FROM RECOMBINANT SPIDER SILK PROTEIN USING RAT MODELS

This study from the People’s Republic of China used an animal model (Sprague-Dawley rat) to investigate the feasibility of using recombinant spider silk protein as a wound-covering material for deep second-degree burns. Sixty animals were divided into four groups; two types of recombinant silk proteins, pNSR-16 and pNSR-32, plus collagen as a control, were applied to the wound, while a fourth group was not treated and served as a negative control. It was found that wound healing in the treatment groups was superior to that in the untreated control group, with a higher expression of basic fibroblast growth factor and an increase of hydroxyproline content of the skin. A preliminary conclusion is that recombinant spider silk protein membrane promotes the recovery of wounded skin owing to an increase in the secretion of basic fibroblast growth factor and hydroxyproline.

Baoyong L, Jian Z, Denglong C, Min L
Burns, 36: 891-6, 2010

MUSCLE CONTRACTILE PROPERTIES IN SEVERELY BURNED RATS

This study from the United States considers the dynamics of muscle atrophy and muscle contractile properties after severe burns. On the basis of the assumption that for the development of effective treatment of burns it is necessary to have a better understanding of the dynamics of muscle wasting and its effect on muscle function, an effect due to the sustained catabolic response secondary to burns, a number of male Sprague-Dawley rats were subjected to either a 40% total body surface area scald burn or a sham burn and investigated at various time points after injury (3, 7, 14, 21 days). After a detailed description of the effects of this treatment the authors report significant differences in muscle wet weight and protein weight between the sham animals and those that were burned. Significant differences in muscle contractile properties were found at day 1, with lower absolute tetanic tension, and also specific tetanic tension, in burn rats than in the sham rats. No significant differences in fatigue properties were found between the groups.

Wu X, Wolf SE, Walter TJ
Burns, 36: 905-11, 2010

THE APPLICATION OF GLYCEROL-PRESERVED SKIN ALLOGRAFT IN THE TREATMENT OF BURN INJURIES: AN ANALYSIS BASED ON INDICATIONS

Glycerol-preserved skin allograft (GPA) is known to play an important role in burns management, requiring the application of a number of techniques, e.g. wound-bed preparation, definitive dressing, and sandwich grafting technique. The authors of this paper from Malaysia describe their experience with GPA and its effectiveness in burn treatment. All burns managed with GPA from October 2001 to 2008 were analysed. The mean total body surface area burned was 28.7% and GPA adhered to the wound for 8.4 days before rejection took place. The average duration of the hospital stay of the survivors was 42.5 days, and the autograft take was 88.4%. When GPA was applied to a partial-thickness burn as a definitive dressing, all patients achieved complete healing within 19 days on average without further surgical intervention. Although there was colonization of burn wounds after application of the skin allografts, the outcomes of autograft take and wound healing were not significantly different. The authors conclude that selective and strategic use of GPA in severely burned patients ensures optimal benefits.

Kho T, Halim AS, Mat Saad AZ, Dorai AA
Burns, 36: 897-904, 2010

HOSPITALIZED HOT TAP WATER SCALD PATIENTS FOLLOWING THE INTRODUCTION OF REGULATIONS IN NSW, AUSTRALIA: WHO HAVE WE MISSED?

Many people suffer hot tap water burns although these are potentially preventable, for example by having compulsory restrictions on the temperature of tap water delivery. New regulations were introduced in 1999 in New South Wales, Australia, where this study comes from, requiring water to be supplied at a maximum temperature of 50 °C, and this Australian paper investigates changes since then. It was found that relative hospital admission rates since the introduction of the new measures decreased by 6% per year. The persons most at risk were found to be infants, toddlers, and the elderly. Most of the scalds were sustained at home, with some others in residence institutes and schools. Most of the scalds were severe, requiring hospitalization for more than a week. The new regulations appear to have led to a reduction in the number of such burns, and it is therefore necessary - in view of the fact that scalds continue to cause significant morbidity and mortality - to persist with the ongoing education of the general public with regard to the dangers of hot tap water.

Harvey LA, Poulos RG, Finch CF, Olivier J, Harvey JG
Burns, 36: 912-9, 2010
BURNS RELATED TO SUNBED USE

The authors of this article from the United Kingdom believe this is the first review of sunbed-related injuries. It highlights the risks of artificial tanning and reiterates the call for tighter regulation of what has become a rapidly growing industry. There is sound scientific evidence that sunbed use has adverse effects, including melanoma. In particular, 13 patients are considered, with details of their exposure to sunbed tanning, while in general it is pointed out that sunbed use in people under age 35 increases the risk of developing melanoma by 75%. The dangers of artificial tanning devices are therefore underlined and warnings are given against the “desire for a healthy glow”.

Hemington-Gorse SJ, Slattery MA, Drew PJ
Burns, 36: 920-3, 2010

BURN PAIN TREATMENT

In order to combat the pain suffered post-operatively by burn patients it is necessary to use a combination of various high-strength analgesics (opioids) with other drugs that have different action mechanisms, in accordance with the concept of “multimodal analgesia”. Among these, elastomeric perfusion systems have been used and the author of this paper from Spain proposes the use of continuous intravenous analgesia with morphine using elastomeric infusors at a fixed dose for the treatment of such pain. An evaluation is provided of its analgesic effectiveness, side effects, and the patients’ level of satisfaction. Elastomeric perfusion systems offer several advantages: they are easy to use, the patient remains mobile, and their administration causes no complications.

Martelo F.
Ann Plast Surg and Reconstr Microsurg, 4: 65-9, 2010

MANAGEMENT OF PAIN IN ACUTE BURN PATIENTS

This article, in French, also deals with pain treatment. A group of authors from various parts of France present the results of a survey conducted in a number of French burns units, pointing out the great disparity between the protocols and the drugs used in pain therapy. It was therefore decided to review the relevant literature as widely as possible and to provide recommendations about pain management including continuous, breakthrough, procedural, and post-operative pain as well as pharmacological and non-pharmacological approaches. This is the first part of a study that will consider the pathophysiology of pain, the pharmacology of the drugs used for analgesia, and the non-pharmacological aspects of pain.


VERSASET®: A ONE-YEAR ASSESSMENT

Hydrodetsersion, developed in the middle of the first decade of this century, is a technique used for the debridement of partial- and deep-partial thickness burns in preparation for spontaneous healing or grafting. In French, this study conducted in Bordeaux, France, describes how Versajet® was used between days 2 and 5 post-burn in five children and ten adults. The area concerned in the children was 260 cm² in adults 1,200 cm², affecting the face (one patient), neck (7), thorax (10), back (2), upper limb (6), lower limb (4). Wet dressings were preferred using Vaseline gauze and silver sulphadiazine. Detailed results are presented. It was found that hydrodetsersion was more efficient than dermabrasion and less haemorrhagic than tangential excision. Its best use is in difficult-to-treat areas such as the neck and concave areas.

Brûlures, 12: 103-6, 2011

EYEBROW BURN SCARS: INTEREST OF RECONSTRUCTION BY COMPOSITE GRAFT

The aesthetic balance of the face is affected by the appearance of the eyebrows and their reconstruction post-burn is an essential part of the rehabilitation of the burned patient. Several techniques are available, and here the Moroccan authors describe a simple technique that is accessible to all surgeons: a composite graft taken at the scalp with a layer of the contralateral eyebrow. This is a challenging operation but the patient’s return to a normal role in social life depends to a large extent on its successful outcome.

Brûlures, 12: 107-11, 2011

OUR EXPERIENCE WITH TISSUE EXPANSION IN THE RECONSTRUCTION OF BURNED CHILDREN

Tissue expanders are today commonly used in reconstructive surgery to treat consequences of burn trauma and various congenital or acquired abnormalities, and as severe thermotrauma may well result in life-long stigma the successful outcome of all treatment is extremely important for the patients’ return to a normal existence. This retrospective, monocentric study from the Czech Republic describes the advantages of tissue expanders in the reconstruction of burned children and describes complications that may arise from the use of this technique. Altogether 19 children were involved, in whom 34 expansions were performed. Details of the patients’ age, the volume of the expanders used, the location of the expanded area, and the length of hospitalization are reported and retrospectively evaluated. The commonest complication observed was dehiscence of suture in the expanded area. No patient had any problems with the filling of the expander nor were there any complications related to infection.

Gregorová N, Lipový B, Suchánek I, Krupicová H, Brychta P