

## INTERNATIONAL ABSTRACTS

### THE DISCOTHEQUE FIRE IN GOTHENBURG 1998 - A TRAGEDY AMONG TEENAGERS

A fire disaster in 1998 in Gothenburg, Sweden, killed 63 teenagers and wounded 213. The fire, caused by an act of arson perpetrated by a local youth, started in the basement of an overcrowded discotheque and had devastating consequences. The rescue work - by other youths, fire fighters, police, and medical staff - was prompt although conducted in a very difficult situation. Thanks to the orchestrated efforts of all concerned, and to the fact that the disaster occurred in a major city with substantial resources, all the injured were hospitalized within 2 h. The load on the four local hospitals was initially severe owing to the large number of casualties and the limited number of staff on night duty. The situation was contained by relocating patients from the intensive care units to ordinary wards and by transporting several of the most severely burned patients by helicopter to burn units in other parts of Sweden and to Norway. Large numbers of relatives and friends assembled at the local hospitals. Following this new experience for hospital staff, which had both positive and negative aspects (violence, threats, and rumours) as a result of the large number of casualties, a vast psychosocial rehabilitation programme was set up by the health care staff, religious organizations, schools, and the community which has continued over the years. This sort of disaster emphasizes the necessity of an extensive condition of preparedness not only in the rescue and medical services but also in approaches to the rehabilitation of patients in society.

Cassuto J., Tarnow P.  
Burns, 29: 405-6, 2003

### FIRE DISASTER IN GOTHENBURG 1998 - SURGICAL TREATMENT OF BURNS

In October 1998 a fire in a discotheque in Gothenburg, Sweden, killed 63 people and injured another 213. Altogether, 154 young persons were admitted to hospital, of whom 23 required primary reconstructive surgery. Total body surface area (TBSA), burn depth, surgical treatment, hospital stay, and complications were studied. In contrast to usual findings in burn patients, the burns observed were mainly well circumscribed and predominantly full-thickness, covering 1-40% TBSA, while partial-thickness burns only comprised 1-7% TBSA. Exposed bone was seen in 10 of the 23 patients requiring reconstructive surgery. Escharotomy was performed in 11 patients, of whom six were subjected to fasciotomy. Primary excisions and skin grafting were performed in 22 patients, five required amputation, eight had local flaps, and two had free flap coverage. Thoracic surgery was performed in one patient owing to endocarditis. Severe infection occurred in eight patients, and hospital stay ranged from 21 to 164 days. The survival rate was high among the triage survivors probably because of the promptness of the rescue operations, the hospital capacity in the area, and the young and healthy condition of the patients.

Tarnow P., Gewalli F., Cassuto J.  
Burns, 29: 417-21, 2003

### COLLAGEN MORPHOLOGY IN HUMAN SKIN AND SCAR TISSUE: NO ADAPTATIONS IN RESPONSE TO MECHANICAL LOADING AT JOINTS

The random-like structure of dermal collagen plays a major role in the strength and function of the human integument. It is possible that collagen bundles align in a parallel fashion in the di-

rection of mechanical tension during scarring, and this may explain the problems of scar formation, especially in joints. Scar tissue and normal skin were biopsied from joints and control areas and evaluated using the Fourier analysis. The results presented show that collagen orientation of scar tissue is more parallel than that of normal skin. The morphology differs with respect to superficial and deep dermal layers and parallel and perpendicular planes, but does not appear to respond to mechanical tension.

van Vuijlen P.A.P., Ruurda J.J.B., van Veen H.A., van Marle J., van Trier A.J.M., Groenevelt F., Kreis R.W.K., Middelkoop E.  
Burns, 29: 423-31, 2003

### WHAT INFLUENCES THE FUNCTIONAL OUTCOME OF CHILDREN AT 6 MONTHS POST-BURN?

A study was conducted of the contribution of demographic, injury, pre-morbid, and parent factors to children's functional outcome at 6 months post-burn injury. The study involved 68 children (age, 5-14 yr; percentage total body surface area burns, <1-35%) and their primary caregivers. It was expected that pre-morbid and parent factors would have a significant impact on the functional outcome of children at 6 months post-burn, but not injury factors. Injury factors included the percentage of total body surface area burned, the number of operative procedures, and the source of the burn (flame burn, scald burn). Pre-morbid child factors included the presence or absence of behaviour problems, psychological or psychiatric problems, learning difficulties, and developmental delay. Parent factors included anxiety, depression, coping processes, and social support. In the process of studying the contribution of these factors to functional outcome, the effect of demographic factors (age, gender, family socioeconomic status, and the number of previous hospitalizations) was controlled for and investigated. Analyses included two hierarchical multiple regression analyses that supported the expected results.  $R$  was significantly different from zero at the end of each step in both hierarchical regression analyses, indicating that each group of factors added significantly to the fit of the model. After step 4 in the final regression model with all independent variables in the equation,  $r = 0.85$ ,  $f(18, 49) = 6.89$ , and  $p = 0.01$ .

Tyack Z.F., Ziviani B.  
Burns, 29: 433-44, 2003

### ASSESSMENT OF A SILVER-COATED BARRIER DRESSING FOR POTENTIAL USE WITH SKIN GRAFTS ON EXCISED BURNS

Acticoat® burn dressing, a silver-coated dressing possessing antimicrobial activity claimed to reduce infection due to environmental organisms in partial- and full-thickness wounds, was tested for activity as an antimicrobial treatment and as an antimicrobial barrier dressing in three *in vitro* assays. It was found that a modified disc assay method gave false negative results but, in an assay in which bacteria were inoculated on top of samples of Acticoat®, bacterial numbers were reduced, over time, with all the micro-organisms that were tested. Acticoat® served as a barrier for bacteria inoculated onto it from contaminating the surface of an agar plate under Acticoat®. These findings show that Acticoat® has both antimicrobial capabilities (although, for it to be effective, several hours of contact between Acticoat® and the micro-organisms are required) and a capacity to serve as an antimicrobial barrier dressing. These results support the conclusion that Acti-

coat® has the power to reduce microbial contamination of wounds from environmental sources.

Holder I.A., Durkee P., Supp A.P., Boyce S.T.  
Burns, 29: 445-8, 2003

#### ANTISEPTICS

This paper presents an exhaustive state-of-the-art list of the various antiseptics available, grouped by chemical classes, that can be used in medicine, and in particular in the treatment of burn patients. In each group, the various components are defined, with their manner of action, their power of penetration, their possible toxic effects, and their practical use. The information presented constitutes a veritable dictionary that will be useful to all readers seeking concrete assistance in their daily practice.

Lebreton F.  
Brûlures, 3: 181-94, 2003

#### TRIAGE IN MASS BURNS DISASTERS

The civilian medical community occasionally has to face the challenge of the sudden delivery of care to a large number of burn victims. Mass casualties in the past have provided data useful for the preparation of burn disaster plans. The main feature of triage - the most important phase of medical response - is the great number of difficulties that occur simultaneously: the shortage of specialized burn beds, the evaluation of burn surface area and depth, the diagnosis of trauma and inhalation injury, and the prognosis of extensively burned victims. Basic triage categories are defined by the delay before lifesaving surgical intervention and resuscitation are initiated, and the normal basic triage process is not suitable in burn disasters. The aim of this paper is to provide specific triage criteria in mass burn casualties. Triage has to take place in a hospital possessing a burns centre and a team of burns specialists. Appropriate hospital triage improves the utilization of medical resources. The aim of the triage process is to classify every single burn victim for evacuation and treatment in a burns centre, a surgical or medical ward, an intensive care unit, or an emergency department.

Bargues L., Le Ngoc Hue C., Leclerc T., Fourel D., Le Bever H., Carsin H.  
Brûlures, 3: 195-200, 2003

#### FACE BURNS IN CHILDREN AND ADOLESCENTS. CONSTRUCTION-RECONSTRUCTION OF THE PATIENT'S SELF-IMAGE (THEORETICAL REFLECTIONS ON THE BASIS OF CLINICAL EXAMPLES)

Two different case histories of adolescents with burned face injuries suffered in infancy are presented. These serve as an introduction to theoretical reflections on the kind of difficulties that may be found in everyday practice in the psychological support of such young people. The two cases are described in detail, and appropriate conclusions are drawn.

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Brûlures, 3: 201-4, 2003

#### THE IMPORTANCE OF STORED SUPPLIES OF BIOLOGICAL SKIN COVERS IN TERRITORIAL

#### MANAGEMENT OF MASS BURN CASUALTIES

This paper provides supportive evidence of the possible role played by the planning of supplies of the biological covers needed in fire disaster, based on the experience of the two authors. The main steps to be taken are as follows: 1. provide a technically and technologically adequate base for the collection and long-term storage of cells and tissues ready for use in the event of a mass burns disaster; 2. develop a method for estimating the amount of stored tissue grafts; 3. resolve logistical problems associated with providing supplies for operating theatres where disaster casualties are treated; 4. organize a national and international network of graft exchange capable of supporting local skin banks in time of need. Today the Czech Republic - in contrast to the 1970s and 1980s - can deliver any required amount of biological covers without encountering any technological difficulties. The idea of collaborating in the management of fire disasters emerged from experience gained by the authors during the Bashkir disaster in 1989, particularly in relation to the inadequate reserve stock of skin grafts and to the impossibility of increasing their production. Intensified demands for the safety of grafts, together with recent experience from the USA, emphasize the need for an immediate conceptual solution to the problem of the production of reserves of biological covers, which should be ready for transportation wherever needed. Another urgent priority is the establishment of conditions enabling effective international collaboration in major disasters.

Mozicka P., Hosek F.  
Acta Chirurgiae Plasticae, 44: 90-6, 2002

#### DERMAL REGENERATION TEMPLATE FOR DEEP HAND BURNS: CLINICAL UTILITY FOR BOTH EARLY GRAFTING AND RECONSTRUCTIVE SURGERY

In the acute treatment of the deeply burned hand, and the subsequent reconstructive procedures, problems may be encountered owing to a lack of sufficient suitable graft material and the risk of donor site morbidity and scarring. The aim of the study described in this paper was to determine the feasibility of treating deep hand burns using a dermal regeneration template. Patients presenting deep hand burns underwent either acute treatment or reconstructive procedures with an Integra® dermal regeneration template. The wound sites were first grafted with the dermal regeneration template and then, two or three weeks later after the formation of neodermis, the silicone layer of Integra® was removed and a very thin split-thickness epidermal autograft was placed in position. Acute grafting was performed on 15 hands in 11 patients, and reconstructive surgery on 14 hands in 11 patients. The median follow-up was 12 months. Integra® take was 100% in all the hands treated. After acute grafting, the wound site skin was flexible and supple and did not adhere to the deeper layers, thus permitting free articular and functional movement. The cosmetic results of acute surgery were judged satisfactory by both patients and surgeons. After reconstructive procedures, significant improvements were achieved in cosmetic status, based on the Vancouver scar scale ( $p = 0.0002$ ), and in three measures of function, i.e. thumb opposition score ( $p = 0.0005$ ), fingertip-to-palm distance ( $p = 0.0039$ ), and prehensile score ( $p = 0.0039$ ). A favourable cosmetic and functional outcome was thus consistently achieved using a synthetic dermal regeneration template for the treatment of deep hand burns either by acute grafting or by reconstructive surgery.

Dantzer E., Queruel P., Salinier L., Palmier B., Quinot J.F.  
British Association of Plastic Surgeons, 56: 764-74, 2003