INTERNATIONAL ABSTRACTS

LASER DOPPLER IMAGING PREDICTION OF BURN WOUND OUTCOME IN CHILDREN. IS IT POSSIBLE BEFORE 48 H?

This Australian paper considers the advantages of using Laser Doppler Imaging (LDI) for predicting burn wound outcome, a technique hitherto tested and proved useful in children between 48 and 72 h post-burn, while here the technique was used also prior to 48 h post-burn. Four hundred children who over a one-year period presented to a burn clinic were evaluated prospectively. The patients were divided into two groups: patients presenting within 48 h of their burn (160) and after more than 48 h (240). Patients were monitored until healing had occurred or an operation proved necessary. The children’s mean age was 2.4 yr (range, range 0.1-15.9 yr). There was a statistically nonsignificant difference in the sensitivity and specificity of LDI (respectively 78% and 74%) compared to 75% and 85% in patients scanned after 48 h. It was therefore established that LDI was a correct predictor of burn wound outcome in children also within 48 h of the burn wound. A moderate amount of movement, infection, the administration or not of first aid, and the type of dressing used did not affect LDI’s accuracy.

Nguyen K, Ward D, Lam L, Holland AJA
Burns, 36: 793-8, 2010

VIDEOCAPILLAROSCOPY IN POST-BURN SCARS: IN VIVO ANALYSIS OF THE MICROCIRCULATION

This Italian study evaluates in vivo the differences between the microcirculatory characteristics of the post-burn scar and of healthy skin. Fifteen scar areas and twelve healthy skin areas in 12 patients with post-burn scars in the right and the left upper limb were evaluated by means of contact optical probe videocapillaroscopy. The following were studied: capillary density, length, and diameter, together with the capillary distribution pattern (punctiform, reticular, directional) and the presence of microhaemorrhages and neoangiogenesis. Capillary loop diameter and length, the capillary distribution pattern, and the presence of neoangiogenesis were found to be significantly increased in post-burn scars compared with controls. There were also significant differences between hypertrophic tissue in the active phase and that in the remission phase as regards capillary diameter and the presence of neoangiogenesis. Videocapillaroscopy thus revealed in vivo a change in local microcirculation architecture, as patients with hypertrophic burn scars showed a variety of microcirculatory changes, often clustered in a characteristic pattern of abnormally oriented, dilated capillaries and neoangiogenetic phenomena. This technique could well prove useful when it is required to make assessments and form prognostications of burn outcome.

Gangemi EN, Carnino R, Stella M
Burns, 36: 799-805, 2010

THE ROLE OF FIBRINOGEN IN AGGREGATION OF PLATELETS IN BURN INJURY

The purpose of this study from Russia was to study the influence of fibrinogen concentration and the degree of its oxidation on post-burn platelet aggregation. It was shown that the level of aggregation of platelets depended to a large extent on the concentration of fibrinogen (non-oxidized and oxidized) plasma. The possible mechanisms of these effects were analysed. The spontaneous aggregation of platelets was considerably enhanced in the acute period post-burn period. Thermal trauma was found to be accompanied by the development of hyperfibrinogenaemia and an increase in the level of oxidized fibrinogen.

Levin GY, Egorihina MN
Burns, 36: 806-10, 2010

REDUCTION OF PLASMA GRANZYME A CORRELATES WITH SEVERITY OF SEPSIS IN BURN PATIENTS

In view of the high risk of mortality in burn patients, related to age, burn area extent, and sepsis, this Italian study determined plasma granzyme A (GrA) in burn patients in order to verify whether decreased GrA levels were associated with poor prognosis. GrA is a serine protease constitutively expressed by γδ and NK cells, in agreement with their functional cytolytic potential. It has been shown by in vitro studies that GrA may be released extracellularly during cytotoxic cell degranulation, indicating the activation of cytotoxic cells. Specific GrA activity was tested in the plasma of burned and healthy subjects by esterase assay, and it was found that plasma GrA was significantly decreased in septic rather than in nonseptic burn patients and in healthy subjects. Day 3 plasma GrA was significantly lower in nonsurvivor than in survivor septic patients (p < 0.05). This was a retrospective study and GrA was therefore not a confirmed predictor of septic outcome post-burn. However, its determination provides some useful information about the development and severity of sepsis.

Burns, 36: 811-8, 2010

PREVALENCE OF MULTIDRUG-RESISTANT ORGANISMS RECOVERED AT A MILITARY BURN CENTER

Burn patients are liable to infections due to multidrug-resistant (MDR) pathogens, with significant associated morbidity and mortality. A 6-year study (2003-2008) of antibiotic sensitivity records that assessed the prevalence of MDR isolates by pathogen at the US Army Institute of Surgical Research Burn Center found that the most prevalent organism recovered was Acinetobacter baumannii, followed by Pseudomonas aeruginosa, Klebsiella pneumoniae, and Staphylococcus aureus (respective recovery rates: 22%, 20%, 20%, 13%). MDR prevalence rates among these isolates were A. baumannii 53%, methicillin-resistant S. aureus (MRSA) 34%, K. pneumoniae 17%, and P. aeruginosa 15%. On the basis of these and other findings, it was possible to state that the increasing antibiotic resistance patterns of the most prevalent isolates recovered during extended hospitalization, the impact of the percentage of total body surface area burned, and other clinical parameters may affect empirical antimicrobial therapy and patient management decisions during treatment.

Keen EF, Robinson BJ, Hospenthal DR, Aldous WK, Wolf SE, Chung KK, Murray CK
Burns, 36: 819-25, 2010
**IMIPENEM-RESISTANT PSEUDOMONAS AERUGINOSA STRAINS CARRY METALLO-ß-LACTAMASE GENE bla IMP IN A LEVEL I IRANIAN BURN HOSPITAL**

The purpose of this study was to determine the distribution of blaIMP and blaVI M, transferable genes in *Pseudomonas aeruginosa* isolates from infected burn wounds in an Iranian burn care centre. These are genes that confer imipenem resistance and increase the burn patient mortality rate. *P. aeruginosa* isolates from burn patients were tested for antibiotic susceptibility and for production of metallo-ß-lactamase (MBL). DNA was purified from isolates with positive MBL results and underwent PCR for detection of blaVI M and blaIMP genes. It was found that MBL was produced by 23 imipenem-resistant isolates and that blaIMP gene was detected in all the isolates. None of the isolates carried blaVI M gene. The mortality rate related to infection with MBL-producing *Pseudomonas* strains was 82.6%, for non-MBL-producing *Pseudomonas* it was 22.7%. It was therefore shown all MBL-producing isolates in this hospital carried blaIMP gene. Early identification of these strains and strict isolation methods will prevent this transferable gene from spreading to other Gram-negative bacteria and reduce the risk of high mortality.

Bahar MA, Jamali S, Samadikuchaksaraei A
Burns, 36: 826-30, 2010

**INTRALESIONAL PENTOXIFYLLINE AS AN ADJUVANT TREATMENT FOR PERIORAL POST-BURN HYPERTROPHIC SCARS**

Pentoxifylline (PTF) is a methylxanthine derivative used in therapy as an antifibrotic agent. In *vitro* PTF inhibits the production of collagen and reduces the proliferation of fibroblasts in hypertrophic scars. The aim of this Brazilian study was to assess changes in the elasticity of hypertrophic scars in the peribuccal area in burn patients with mouth-opening limitations and to evaluate the effects of PTF treatment in such cases. It was found that a group of patients treated with PTF showed an improvement in their condition compared to patients who did not receive this treatment. Measurements of mouth opening were made before and after five therapeutic sessions with pentoxifylline at weekly intervals and there was found to have been a significant improvement in the opening of the mouth and in vermilion distance. It was thus concluded that pentoxifylline increased the elasticity of perioral hypertrophic scars.

Isaac C, Carvalho VF, Paggiaro AO, de Maio M, Ferreira MC
Burns, 36: 831-5, 2010

**PERCUTANEOUS COLLAGEN INDUCTION THERAPY: AN ALTERNATIVE TREATMENT FOR BURN SCARS**

This pilot study from Germany shows that percutaneous collagen induction (PCI) appears to be a safe method for treating post-burn scarring without destroying the epidermis. It is a procedure that can be repeated safely and is applicable in regions where laser treatments and deep peels provide limited opportunities. Sixteen consecutive patients (average age, 37 ± 15.5 yr; average body mass index, 25.7) with post-burn scarring were treated with PCI, which involved using the Medical Roll-CIT (Vividra, Cape Town, South Africa), a device designed to multiply puncture the skin to the level of the dermal scar in order to institute remodelling. The patients were previously treated with topical vitamin A and C cosmetic creams for at least four weeks to maximize collagen stimulation.

On average, the patients rated their improvement as 80% better than before treatment while histological tests showed a considerable increase in collagen and elastin deposition 12 months post-operatively. It is now necessary to carry out efficacy trials to confirm the data of this pilot study.

Burns, 36: 836-43, 2010

**THERMODYNAMIC PARAMETERS AND CONTINUOUS MONITORING OF PICCO® IN BURN IN PATIENTS MEASURED BY PICCO® (The role of burn heakers in burn care)**

PiCCO® makes it possible to evaluate flow-based haemodynamic parameters and continuous monitoring through the pulse contour cardiac output system. The pathophysiological changes that occur in the vascular bed cause a drift between these parameters and the measurements therefore have to be regularly calibrated at intervals that have not yet been accurately determined. These matters are considered in this prospective paper, which investigated the drift during the first week post-burn. Using two measurements (Bland and Altman tests), it was found that cardiac output by thermomodulation and pulse contour correlated well. The drift was not correlated with the time between two calibrations but seemed to be higher in the early post-burn period. No great difference was found between thermalmodulation and pulse contour assessments, but the individual drift was found to be as much 200%. PiCCO® must therefore be recalibrated before any changes in therapy.

Perro G, Robert R, Bourdarias B, Gerson P, Benillan N, Cutilias M
Brûlures, 11: 161-4, 2010


In folk medicine “burn healers” claim to be able to alleviate burn pain by using secret incantations “to talk the fire out”, and in some parts of France even qualified doctors may sometimes resort to this traditional method. Altogether 134 hospital medical staff, 173 burn patients, and 210 general practitioners took part in a survey that investigated patients’ individual experience. General practitioners were the least enthusiastic about “burn healers” (36% approved), while 61% of medical staff had a good opinion of the method; 76% of the patients who were seen by “healers” said they were very satisfied. It is necessary to study the placebo effect in this kind of treatment but its success as a complement to regular therapy entitles it to further investigation.

Perret N, Alibeu J-P, Latarjet A, Bonaz B
Brûlures, 11: 165-72, 2010