

INTERNATIONAL ABSTRACTS

SERUM CHOLESTEROL AND TRIGLYCERIDES: POTENTIAL ROLE IN MORTALITY PREDICTION

The general purpose of this study was to evaluate the diagnostic usefulness of serial cholesterol and triglyceride measurements in severely burned patients. One specific objective was to find out if these parameters were clinically relevant in the determination of morbidity in burn patients and thereby in outcome. Cholesterol and triglyceride concentrations were measured daily in 220 patients with thermal injuries. Blood samples were taken on admission and thereafter daily until the patient's discharge or death. A characteristic course was observed for both parameters: in the group of non-survivors, a decrease of cholesterol occurred prior to death, while in survivors it increased prior to discharge. The time courses of both groups (survivors and non-survivors) differed significantly. An increase in triglycerides was observed in all non-survivors before death, but in the group of survivors triglycerides they remained more or less the same. In the 220 patients, the changes in cholesterol, hazard ratio, and triglycerides had a capacity comparable to that of established parameters for the prediction of the severity of a burn trauma and thereby of its outcome. It is concluded that the serial measurement of cholesterol and triglycerides may be clinically relevant for the assessment of morbidity in burn patients and thereby for estimation of patient outcome. Such serial measurements provide the clinician with useful information in the treatment of severely burned patients.

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BURN INJURIES ASSOCIATED WITH THE WATER TANK OF MOTOR FARMING TRICYCLES IN CHINA

Burns caused by the water tank of motor farming tricycles have not hitherto been reported. We performed a retrospective study of such burns in 126 patients with complete records in rural areas of China. The majority of the patients were unmarried (59.5%), young (55.6% between 20 and 40 yr), and male (male-to-female ratio, 9:1). The burn accidents occurred mostly (66.7%) during busy spring and summer seasons. The major category of injury mechanism was identified as that of motor-tricycle-related burns caused by hot water (70-100 °C) from the water tank in traffic accidents. Overloading may have been one of the most important causes of the accidents. The burn wounds were located mostly (64.3%) in the buttocks and lower extremities (especially the thigh), and usually took 3-4 weeks for complete healing. Most of the patients presented a moderate burn area (20-50% TBSA) and deep partial-thickness or full-thickness burns. For the purpose of prevention of these injuries and improvement of patient prognosis, a number of recommendations are made.

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ROLES OF ISCHAEMIA AND HYPOXIA AND THE MOLECULAR PATHOGENESIS OF POST-BURN CARDIAC SHOCK

A study was made of the roles of ischaemia and hypoxia in the development of post-burn cardiac shock and its molecular pathogenesis. One hundred and fifty healthy adult Wistar rats were divided into a control group and a burn group inflicted with 30% TBSA third-degree burns. The two groups were processed 1, 3, 6, 12, and 24 h post-burn. We measured myocardial contractile function, myocardial microvascular permeability, the volume of regional myocardial blood flow, the levels of myocardial myosin light chain 1 (CM-LC1), myocardial nuclear factor kappa B activity, myeloperoxidase (MPO), tumour necrosis factor alpha (TNF α) mRNA expression, and levels of myocardial TNF α . It was found that myocardial microvascular permeability began to rise 1 h post-burn and was still rising at 24 h. The following findings were made: the volume of regional myocardial blood flow fell significantly and remained at a level markedly lower than that of the control group; CM-LC1 also rose significantly and reached a level that was 18.6 times higher than that of the control group; myocardial NF-kB activity and TNF α mRNA expression were significantly promoted; levels of myocardial TNF α and MPO activity were elevated; and cardiac mechanical parameters (including LVSP \pm dp/dt max significantly decreased while LVEDP increased). In conclusion, this study demonstrated severe myocardial damage due to ischaemia and hypoxia following burns. The promotion of myocardial NF-kB activity and TNF α mRNA expression in the myocardium may be an important factor in the development of post-burn cardiac shock.

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Burns, 29: 828-33, 2003

RETARDATION OF WOUND HEALING BY SILVER SULPHADIAZINE IS REVERSED BY *ALOE VERA* AND NYSTATIN

The inhibition of wound contraction by topical antimicrobial agents has already been described, and this study was conducted in order to investigate the phenomenon further and explore the effect that other agents such as *Aloe vera* might have on the process. Under anaesthesia, full-thickness excised wounds were created on the back of Sprague-Dawley rats. Topical agents were used to treat the wounds three times daily for fourteen days, after which the wounds were observed until they healed. The rats were divided into seven groups: saline control, placebo (aqueous cream) control, silver sulphadiazine (SSD) cream 1%, SSD 0.5%, SSD 1% with *Aloe vera*, SSD 1% with nystatin, and nystatin. The wound surface areas were measured every three days. Time to 50% and 90% healing was compared using ANOVA. Wound half-life and healing times were shortest in the SSD/*Aloe vera* and nystatin groups ($p < 0.05$) and longest in the 1% SSD and saline control groups. The placebo group healed in a significantly shorter time ($p < 0.05$) than control. Wound contraction was delayed by saline and SSD. When nystatin and *Aloe vera* were added to SSD, the effect was reversed. These data suggest that a dry wound (saline) heals slowly. Infection control without delay of wound healing is very interesting and clinical trials are planned.

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Burns, 29: 834-6, 2003

THE USE OF A COLLAGEN SPONGE/LIVING CELL COMPOSITE MATERIAL TO TREAT DONOR SITES IN BURN PATIENTS

The aim of this study was to examine the safety and efficacy of bilayered cellular matrix (OrCel™) Ortec International, Inc., New York, NY in facilitating early wound closure of split-thickness donor sites in severely burned patients. We used a matched pairs design: each patient had two designated donor sites of equivalent surface area and depth. The sites were randomized to receive a single treatment of either OrCel™ or the standard dressing Biobrane-L® (Bertek Pharmaceuticals) Sugarland, TX. It was found that OrCel™ more effectively facilitated early wound closure of split-thickness skin donor sites than Biobrane-L®. The healing time in OrCel™ sites was significantly shorter than in sites treated with Biobrane-L®. The reduction of wound healing time was clinically important for earlier recropping. OrCel™ sites presented reduced scarring. The treatment of donor site wounds with OrCel™ was therefore well tolerated, promoted more rapid healing, and caused less scarring than conventional therapy with Biobrane-L®.

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Burns, 29: 837-41, 2003

EXPANDED OCCIPITO-CERVICO-PECTORAL FLAP FOR RECONSTRUCTION OF BURNED CERVICAL CONTRACTURE

Post-burn neck contracture and hypertrophic scarring may lead to functional limitations and aesthetic disfigurement, and the reconstruction of severe deformities and neck scars following the healing of burns presents some of the most challenging problems in reconstructive surgery. A thorough knowledge of the latest reconstructive techniques, accurate diagnosis of tissue deficiency and secondary distortion, imaginative planning, and careful execution of surgical plans are all necessary for improvement of a burned deformed neck. The aim of this article is to assess the role of the expanded occipito-cervico-pectoral flap in the reconstruction of four patients with severe neck burn scars with involvement of the back of the shoulder but with the anterior aspect of chest intact. This is an alternative method for the reconstruction of burn scars in the neck area.

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Burns, 29: 842-4, 2003

A NEW METHOD: PERFORATOR-BASED TISSUE EXPANSION FOR A PRE-EXPANDED FREE CUTANEOUS PERFORATOR FLAP

Thanks to recent advances in the use of pre-expanded free flaps, it is now possible to replace larger post-burn contracture areas. Free anterolateral thigh cutaneous perforator flaps are popular owing to their constant, reliable anatomy. We used a combination of pre-expansion, perforator-based prefabrication of tissue expansion and a free anterolateral thigh flap to resurface a large territory of post-burn cervical contracture in a 33-year-old female patient with second/third degree flame burns (45% TBSA). Limited lateral flexion and rotation were noted, despite aggressive rehabilitation for 6 months. A 650-cm³ kidney-shaped tissue expander was inserted around a myocutaneous perforator under the fascia via a mid-lateral thigh incision in the first stage. Two months later the right lateral neck scar (25 x 13 cm) was excised after serial clinical saline injection. The pre-expanded free flap (29 x 15 cm), combined with Z-plasty and capsulectomy, was harvested and covered in the contracture defect. The flap totally survived. One-stage resurfacing was achieved with

immediate post-operative improvement. Hospital stay was only 6 days. The donor site was closed primarily. After 6 months' follow-up, the functional improvement was as follows: increase in rotation, 14°; increase in lateral flexion, 10°. Prefabrication of the free cutaneous perforator flap by perforator-based tissue expansion above the muscle has four main advantages: 1. it provides accurate and safe expansion without damage of any perforator compared with blunt dissection; 2. a larger territory of free flaps can be used for burn reconstruction; 3. the donor site is closed primarily with low tension; and 4. it is not a random expanded flap, owing to the direct expansion of the specific skin territory around the perforator. The disadvantages are the two-stage procedures, complications of tissue expansion (e.g. infection, extrusion), and the possibility of pedicle compression.

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Burns, 29: 845-8, 2003

THE SEVEN-FLAP Z-PLASTY REVISITED

Even if multiple Z-plasties are widely used for burn contractures, the seven-flap Z-plasty procedure has not gained wide acceptance, in spite of the fact that this technique has the advantage of achieving greater elongation than other Z-plasty techniques. Satisfactory results are described of the safe use of the technique in 31 cases.

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Burns, 29: 849-53, 2003

SUBESCHAR CLYSIS IN DEEP BURNS

In a study carried out in India, 613 patients with deep burns (up to 50% TBSA) were treated with 0.25% povidone iodine subeschar clysis, plus surface application of povidone iodine + Neosporin in the form of "crust". The results were compared with those of 595 age-, sex-, and burn-percentage-matched patients treated only with "crust" application. The quantitative bacterial count showed significantly less incidence of infection on days 7 and 8 post-treatment ($p < 0.001$). The organisms identified were predominantly *Staphylococcus aureus* and *Pseudomonas aeruginosa*. A significantly greater number of patients were grafted within 20 days in the subeschar clysis group. Graft take in this group was 90%.

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SPLIT-THICKNESS SKIN GRAFTING FOR RECREATION OF THE SCROTUM FOLLOWING FOURNIER'S GANGRENE

Fournier's gangrene, an infection of the genitals and perineum, is treated with extensive soft tissue debridement, which may cause loss of scrotal skin. Various options are open for reconstruction of the scrotum. Four cases are described of re-creation of the scrotum with meshed split-thickness skin graft (STSG). STSG is compared with other treatment options, and it is concluded that STSG is a safe, technically easy treatment option that yields satisfactory cosmetic and functional results.

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Burns, 29: 857-62, 2003