

[EP241] BALNEOTHERAPY AS A STANDARD CARE FOR SEVERE BURNED PATIENTS

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: To describe the balneotherapy in the Brussels burn center Queen Astrid and to find some improvements for better care. To find some literature about balneotherapy.

Method: We first did a literature study on wound care and burns. After that we observed 20 balneotherapy by severely burned patients on the intensive care ward.

Results / Discussion: Everything from the preparation of the patient till the aftercare was observed. The main result was that it is a complex therapy and that there are a lot of things to discuss. All the nurse interventions were executed by a bath team with years of experience. Unless that there were a lot of differences seen by the observer. The duration of the therapy and the way how the nurses worked were the most different results. In 80% of the cases the patient underwent a full sedation. In all the cases the burn surgeon decided the choice of dressings and ointments.

Conclusion: We first have to check if the balneotherapy is still the perfect way to clean the patient and to do a good wound care. Due to a lot of infections with pseudomonas we can argue about the choice of balneotherapy. A multidisciplinary discussion is needed to improve the different steps in balneotherapy, with a good pain and sedation control, prevention of pressure ulcers, the choice of debridement and the impact of wound dressings.

[EP242] A NEW ANTI-BIOFILM DRESSING – A CLINICAL STUDY ON PARTIAL THICKNESS BURNS

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: Partial thickness burns (PTB) are a common and challenging wound type to manage, they are highly exuding, painful and often complicated by wound infection. This pre market study assesses the safety and performance of an absorbent next generation antimicrobial dressing (NGAD) in partial thickness burns.

Method: Twenty five patients; children and adults with PTBs were treated with the NGAD dressing for up to 3 weeks or until healing whichever occurred first. Performance and safety data were recorded. Wound assessment included: burn improvement/re-epithelialisation, dressing adherence and comfort/pain.

Results / Discussion: All subjects who went on to complete the study period (17) progressed to complete re-epithelialisation (defined as 95% re-epithelialisation) prior to 21 days. Mean pain ratings decreased from baseline and over duration of use. Comfort levels on application and during wear were scored as good or excellent for most subjects. The safety profile of the NGAD dressing was acceptable and similar to other silver dressings in previous burns studies.

Conclusion: The limited data from this small non-comparative study suggests that the NGAD dressing is beneficial in the management of PTBs where bacteria can be a significant clinical problem. The dressing had a satisfactory safety profile.

[EP243] THE RESULTS OF TREATMENT CHILDREN WITH DEEP BURNS WITH SKIN EQUIVALENT

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: The search for new methods to improve the cosmetic and functional results of treatment of patients with deep burns, has led to the use of biological and synthetic equivalents of the skin in surgical practice. Among the large number of proposals to date analogues, we used the following: cell technology ¹ and synthetic skin substitute ².

Method: A comparative analysis of long-term results of treatment of 30 children with deep burns of the skin on the area from 2 to 30% of the body surface. Each patient was compared zone of interest: Zone A - third-degree burns in the treatment of which used skin equivalents (cell technology ¹ or synthetic substitute ²). Zone B – full-thickness wound, which was used traditional surgical treatment: split-thickness skin graft. Instrumental assessment of treatment results was carried out using the device ³.

Results / Discussion: It has been found that the use of skin equivalents zone bloodstream in scar and distribution of hemoglobin and melanin in it, close to the level of healthy skin in the performance by the end of the first year after total epithelization of wounds, in contrast to the scar tissue formed in the execution of traditional surgical skin grafts to the same terms.

Conclusion: Thus, the use of these innovative technologies in combustiology childhood achieves good aesthetic results after surgery, which is especially important in the localization of areas of damage in a cosmetically important areas.

¹ «ReCell®»

² «Suprathel®»

³«Antera 3D®»

[EP244] SMARTPHONE APPLICATIONS IN BURNS

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: During the last few years applications (apps) for smartphones were becoming ever more popular. Most are designed to provide entertainment or functions for every-day use, however apps with medical context are available as well. The aim of this survey was to provide an overview of currently available apps applicable in burn wound management.

Method: From February 25th to March 1st, 2014, the online-application-stores of the two largest companies in the business¹ were searched systematically for the terms „burn“, „burns“, „thermal“ and the German word „Verbrennung“. Apps designed for medical use in burns were examined more closely, including a standardized patient model (male, 25 years old, 175cm and 75 kg).

Results / Discussion: In total 66 burn-related apps could be found. In both online-stores 4 types of apps could be identified: calculation apps, information apps, books/journals and games. Of 32 calculation apps, the majority (20/32) provided both the possibility to calculate burned total body surface area (TBSA) and total fluid requirement (TFR). 26 information apps and 3 books on burn management were found. Few of the reviewed apps (4/66) were available in both cyber-stores.

Conclusion: We could demonstrate clearly that many medical apps are available for burn management. Apps with as well as without charge provide the opportunity to perform an objective assessment of a burns patient concerning TBSA and TFR. Especially apps without charge should be investigated more closely in the future, because they are more commonly used than apps with charge.

¹ Apple's App Store for iOS, Google's Play Store for Android

[EP245] RATIONALE OF BIOPLASTIC MATERIALS APPLICATION IN SURGICAL MANAGEMENT OF BURN INJURIES IN PUBESCENTS

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: Development of methods for surgical treatment of burn injuries in pubescents is of particular importance as any external influence during puberty may cause disturbance of genetically determined development and impair lifespan and quality of life. System of surgical management of deep burn wounds considers as soon as possible preparation for plastic closure. Acute phase of burn disease (burn shock phase) in adolescents determines course and outcome of burn disease. Extensive severe burn injuries in pubescents is frequently complicated with sepsis and multiple organ dysfunction syndrome because of adaptation mechanisms failure. Bioplastic materials application is a major advance in surgical management of severe burns in adolescents as it allows to optimize wound process and expedite preparation for skin grafting.

Method: Actually in Russian Federation and European Union more than a hundred of bioplastic materials are used. Our experience consists of applying similar materials during preparation for wound closure in surgical treatment of twelve pubescents with extensive deep flame burns of 40 to 58% (average 48,6%) TBSA. Bioplastic material was applied after early extended necrectomy (average in 4,8 day after injury). Eschar of 12 - 21% (average 12,6%) TBSA was one-time excised. Quantity of procured necrectomies in research group was 2,8.

Results / Discussion: Average time of first skin autografting was 11,3 days. During preparation for skin autografting bioplastic material based on hyaluronic acid and peptide complex (HYAMATRIX, G-DERM, Russian Federation) was applied.

Conclusion: Application of bioplastic materials based on hyaluronic acid decreases time of preparation for surgical closure by average 6,4 days. A tendency to decrease in length of hospital stay by 9 days ($p > 0,05$) was noted.

[EP246] NEW WAYS IN USING WOUND DRESSINGS IN POST-BURN SCARS TREATMENT

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: Up to the present there is still unsolved problem how to manage freshly healed burn wounds in the first two weeks after their epithelization. In this period the wound dressings are not used any longer, but it is too early to start proper scar management of reepithalized fragile wound sites. One of the promising directions of treatment of "young" post-burn sites is closing them with materials traditionally used for management of superficial or residual wounds. Such are wound coverings of the last generation (foam).

Method: This dressing was used in children right after wound epithelization. Already in 2-3 days after the use of this dressing the formation of a smooth flat and intact scar surface was noticed with sufficient elasticity and without signs of dryness.

Results / Discussion: Early stabilization of fresh scar allowed to start application of anti-scar ointments already at the first week after epithelization of wounds.

It has great importance in scar prevention.

Conclusion: Usage of modern wound coverings immediately after healing of burn wounds facilitates quicker stabilizing of tender burn surface.

This effect is provided by the protective quality of the dressing. It protects the wound from infection and ensures earlier usage of topical anti-scar preparations. This method plays the important role in prevention of rough scars.

[EP247] INTERIM ANALYSIS OF A NON-INTERVENTIONAL CLINICAL STUDY WITH A POLIHEXANIDE BASED HYDROGEL* IN PARTIAL AND FULL THICKNESS SKIN BURNS

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: Wound infection remains a major cause of morbidity and mortality in severe burn patients. Prevention and local treatment are key in the infection management. The primary objective of this study is to evaluate the healing of split thickness skin grafts when treated with gel* in patients with partial and full thickness skin burns.

Method: This is the first non-interventional multicenter clinical study (NCT01534858) with a planned interim analysis after 25 evaluable patients. Investigational Product (IP) was applied topically as a thin layer to the grafted area with a fat gauze placed immediately after skin transplantation (day 5), then every other day until day 29 or until 100% epithelization occurred. Primary endpoint was the achievement of full graft neo-epithelization as clinically assessed by the investigator. An additional photoplanimetric assessment was done.

Results / Discussion: 29 patients (69% male, aged 21-87; grade IIb (89.7%)) were included into this analysis. Due to an exclusion criterion one patient was not treated with IP. Except for one transplant failure all patients reached 100% epithelization after 1-3 IP administrations (median time 7 days). Photoplanimetric assessment of neo-epithelization could confirm the increasing healing tendency of the surface. There were no wound infections, pruritus or erythema. Pain showed a not significant decreasing tendency. A reoperation in one patient was the only adverse event which was not related to the IP.

Conclusion: Wounds treated with gel* healed without complications, thus IP showed to be effective, safe and well tolerated in grade IIb–III burns.

*Polihexanide based hydrogel, Pronosan® Wound Gel X (B.Braun)

[EP248] APPLICATION OF AG CONTAINING WOUND COVERINGS IN PATIENTS WITH BURNS AND TYPE 2 DIABETES.

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: To improve the results of treatment of burn patients with type 2 diabetes by applying Ag-containing wound coverings.

Methods: 63 patients with dermal burn 5-20% TBSA, aged 45-78 years were examined during 2011-2013. 33 patients were selected for study group. Their wounds were treated under wound covers with Ag-coating. The control group consisted of 30 patients; the treatment of their wounds was conducted with wet antiseptic solution bandages or hyperosmolar antibacterial ointments. The clinical, immunological, cytological and bacteriological methods of research were used.

Results: Bacteriological control showed high antibacterial activity in the study group to pathogenic bacteria. The level of bacterial contamination in the wound patient study group decreased from 104 CFU/g to 102 CFU/g. Use of wound Ag-coverings for burns I- IIa degree terms reduced rejection surface necrosis and wound epithelialization 13.8 days - 23% ($p < 0,05$). Use of wound Ag-coverings for burns II b degree necrotic tissue rejection time and wound epithelialization time decreased by 7.5 days (13%). The glyco haemoglobin level is in direct correlation to the level of microbial contamination. The value of glyco haemoglobin A1c > 8% is predictor of adverse course of wound healing, and risk of septic complications.

[EP249] TREATMENT OF BURN WITH HAEMOGLOBIN SPRAY AS ADJUNCTIVE THERAPY TO STANDARD CARE

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: Burns affect the integrity of the skin and can ultimately result in skin scarring. Current therapeutic goals of wound treatment focus on the reduction of scar formation and severity. However, scar formation itself varies from patient to patient and within an individual based on the location of the wound. Therefore, the preparation of customized treatments for individual patients represents an important therapeutic goal in the fields of burns and wound healing. The objective of this study was to evaluate the usefulness of haemoglobin spray in the treatment of burns and its impact on scar formation.

Method: Burn wounds were mechanically debrided or cleansed. After rinsing with an antimicrobial solution, a thin layer of haemoglobin spray was applied onto the wound area. Foams* served as secondary wound dressing.

Results / Discussion: Burn wounds from ten different patients are shown and treatment results are highlighted. The wound severities range from Grade 1 to Grade 2B. In particular, for Grade 2 wounds the scar formation was an important aspect of the evaluation. In all cases, we observed a fast healing of the burns. In addition, skin integrity and scar formation seemed to be improved.

Conclusion: Haemoglobin spray might be an adjunctive therapy option for severe burns (2A & B) to accelerate wound healing and improve skin integrity.

*Hydro-polymer

[EP250] THE EFFICIENCY OF DRUGS ON THE BASIS OF GEL IN CHILDREN WITH BURNS

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Thursday, May 14, 2015

E-poster session: Burns 1

Aim: To determine the clinical efficiency of drugs on the basis of gel in children with burns.

Methods: 62 patients with dermal burn 5-32% TBSA aged 3-15 years were examined during 2013-2014. Treatment of wounds 39 patients (study group) was performed using tyrothricin gel. 22 patients of them had burns II-a degree, 17 patients –

II-b degree. Treatment of wounds 23 patients (control group) was performed using dressing with antiseptic solution or hyperosmolar antibacterial ointments. Clinical, immunological, cytological and bacteriological methods of investigation were used.

Results: Duration of treatment gel with burns II-a was 7.6 ± 1.5 days, patients with burns II-b – 9.9 ± 2.3 days. Skin grafting was performed in the study group at $7.5 \pm$

1.4 day, in control group at 12.8 ± 1.7 days. Application tyrothricin gel stimulated the migration of neutrophils with higher activity of myeloperoxidase (70%) in capillary blood wound. Gel facilitated phagocyte activation of neutrophils and monocytes in the injury zone capillary blood, gel causes decreased spontaneous recovery test nitroblue tetrazolium by 25% and increased induced test in 3.5 times.

Conclusions: The drug-gel helps to speed up the regeneration of superficial burns, reduces the preparation time of deep burns for skin grafting to 7 days.