Burns – Skin Grafting

Cinahl Search
Selected articles of interest
2006 - 2010
1. The treatment of deep dermal hand burns: how do we achieve better results? Should we use allogeneic keratinocytes or skin grafts?

**Citation:** Burns (03054179), 01 May 2010, vol./is. 36/3(329-334) **Author(s):** Haslik W; Kamolz L; Lumenta

**Abstract:** The treatment of hand burns is challenging due to the high requirements to aesthetic and functional outcome. 27 patients, 7 women and 20 men with deep dermal hand burns with a mean age of 41.3+/−16.5 and a mean TBSA of 15%+/−19.6% were treated either with allogeneic cryopreserved keratinocytes or with split skin grafts. Long-term follow-up revealed no statistical significant differences between the two groups concerning Vancouver Scar Scale as well as hand function judged by the DASH score; however there was a tendency to higher VSS scores and impaired aesthetic results in the keratinocyte group. Allogeneic keratinocytes are a suitable armamentarium for the treatment of deep dermal hand burns; and, if used correctly, they can produce a timely healing comparable to split-thickness skin grafts. Limited availability, high costs as well as the need for special skills are key factors, which render application of this technique outside specialist burn centres virtually impossible. In our opinion, the cultivation and use of keratinocytes should be reserved to these centres in order to facilitate a sensible application for a full range of indications. We recommend usage of allogeneic keratinocytes for deep dermal hand burns only in severely burned patients with a lack of donor sites. Patients with unrestricted availability of donor sites seem to profit from the application of split-thickness skin grafts according to our results.

2. Use of bone anchors for flap fixation in burned patients.

**Citation:** Burns (03054179), 01 May 2010, vol./is. 36/3(379-382). **Author(s):** Danino AM; Guberman DS;

**Abstract:** Mitek or Arim anchors were developed for use in orthopaedic surgery to facilitate soft tissue fixation to bone. We believe this tool can be useful in difficult cases when securing various flaps to bone, we present a retrospective study of deep thickness burns patients. MATERIALS AND METHODS: We conducted a retrospective study, including severely burned patients who underwent flap reconstruction with Mitek or Arim anchor fixation between 1999 and 2007 in our unit. Characteristics analysed included indications for surgery, and postoperative complications. RESULTS: Nine patients (nine flaps) were included, seven men and two women with age ranging from 22 to 59 years old. Flaps were as follows: one gracilis, two latissimus dorsi, four medial gastrocnemius and two lateral gastrocnemius flaps. Indications for reconstruction were: open fractures or joint exposure in severely burned patient. Only one complication was noted: partial flap necrosis with infection of the bone anchor necessitating ablation and a new mobilisation of the flap. CONCLUSION: Mitek anchors are a useful tool in plastic surgery. Suture anchors are used when coverage poses a risk of shearing away from the bone or adequate periosteum and soft tissue is not available for standard suture techniques. The anchor system provides a simple, fast, and efficient technique for flap fixation.

3. An objective long-term evaluation of Integra (a dermal skin substitute) and split thickness skin grafts, in acute burns and reconstructive surgery.

**Citation:** Burns (03054179), 01 February 2010, vol./is. 36/1(23-28), **Author(s):** Nguyen DQA; Potokar TS;

**Abstract:** The field of wound healing has advanced rapidly in the last decade, with this there is an increasing emphasis on the importance of the functional and cosmetic outcomes following injury. Integra artificial skin is the most widely used synthetic skin substitute and is reported to have better outcomes in relation to the appearance and elasticity when compared to split thickness skin grafting (SSG). A review of the literature reveals very few trials that are based on an objective evaluation of Integra treated scars as compared to SSGs. This research aimed to provide objective data on the long-term outcome of Integra. Method: All adult patients from the Welsh Burns Centre who had been successfully treated with Integra ± SSG were invited to attend a clinic for a follow up provided they had been healed for greater than one year. The hypothesis that Integra scars are more pliable than skin grafts was tested objectively using the Cutometer, a suction device which measures skin elasticity. Results: Of the 13 patients eligible, six were available for assessment. The results of this study suggest that Integra treated sites correlate well with normal skin as measured by the Cutometer. This was statistically significant for the parameters Ur/Ue (elastic function) and Ur/Uf (gross elasticity). On the other hand there was no correlation seen between the patients SSG sites and the patient's normal skin. Conclusion: With advances in medicine we are increasingly able to modulate wound healing and the resultant scars. In order to assess new and often costly treatments the need for objective scar measurement tools have become apparent. Integra has been advocated to improve scarring from injury. However, there have been few studies to evaluate the long-term outcome of Integra as compared to traditional methods such as SSG. In the past scar evaluation has been based on subjective scores by patients and clinicians. Now the mechanical properties of the skin can be evaluated using simple bioengineering methods such as the Cutometer Suction Device. Using this device our study has objectively demonstrated that the elastic properties of areas treated with Integra is comparable to normal skin.
4. Acute management of hand burns.
Citation: Hand Clinics, 01 November 2009, vol./is. 25/4(453-459)  Author(s): Sterling J; Gibran NS;
Abstract: Hand burns occur commonly either as part of more extensive burn injuries or in isolation. Optimal management requires careful examination, appropriate wound care, timely surgical excision if warranted, and aggressive range-of-motion therapy.;

5. Initial management of acute pediatric hand burns.
Citation: Hand Clinics, 01 November 2009, vol./is. 25/4(461-467), Author(s): Palmieri TL
Abstract: Hand burns, in particular, are one of the leading causes of hand injury in children and can result in significant impairment of hand function. Appropriate initial management of hand burns in children is imperative to optimize function and minimize long-term scarring, and it is for this reason that the American Burn Association advocates referral of pediatric hand burns to a verified burn center

6. Full-thickness vs split-skin grafting in pediatric hand burns-a 10-year review of 174 cases.
Citation: Journal of Burn Care Research, 01 September 2009, vol./is. 30/5(867-871),
Author(s): Chandrasegaram MD; Harvey J
Abstract: This study was undertaken to assess the incidence of contractures following grafting of pediatric hand burns. Primary pediatric hand burns grafted between January 1997 and July 2007 were reviewed by three groups: A) hand grafts (palmar and/or dorsal grafts excluding digits); B) digit grafts; and C) hand and digit grafts (grafts to palm and/or dorsum including digits). The incidence of contractures and operative release in those with full-thickness grafting (FTG) versus split-skin grafting (SSG) was analyzed. There were 174 grafted pediatric hand burns. In group A, the incidence of contractures with SSG was 26 vs 11% with FTG. Subgroup analysis revealed comparable contracture rates between palmar and dorsal grafts treated with SSG, 24 vs 25%. The only FTG contracture was a palmar graft. The incidence of contractures in digit grafts or group B was low, 3 of 29 with SSG and 0 of 27 with FTG. In group C, the incidence of contractures in the SSG group was 43%, with none in the FTG group, P = 0.019. This was higher with SSG to the palm and digits at 67 vs 21% with dorsal grafts. The study revealed an overall 34 of 126 (27%) incidence of contractures with SSG and 1 of 45 (2%) with FTG, P < 0.001. The incidence of operative scar release was 15% in the SSG group and 2% in the FTG group, P = 0.019. This study supports the use of FTG in the treatment of primary hand burns particularly where the burn involves the surface of the palm and extends into the digits.

7. Managing skin grafts with TNP and Wound Assist®.
Citation: British Journal of Community Nursing, 02 June 2009, vol./is. 14/6(0-), Author(s): Edwards J
Abstract: Skin grafting is one of the most common operations performed in plastic surgery. This is now spreading rapidly to other disciplines, but can pose a variety of wound care problems for nurses. Shearing or displacement of the graft prevents revascularization of the graft, therefore immobilization is important. An ideal dressing for a skin graft should prevent mechanical displacement, allow drainage of serous wound exudate and haematoma, and be easy and painless to change. Application of topical negative pressure (TNP) ensures stabilization of the skin graft as well as prevention of shear and seroma formation underneath the skin graft, thus preventing loss of skin graft and promoting 'take'. Use of TNP ensures graft take and means that the patients do not need to go back to the operating theatre for further grafting and can be discharged earlier. This paper sets out to demonstrate the use of Wound Assist® (Huntleigh Healthcare), on newly applied skin grafts.

Citation: American Journal of Nursing, 01 April 2009, vol./is. 109/4(48-57), Author(s): Connor-Ballard PA
Abstract: Burns are among the most intensely painful injuries. All patients will experience pain, regardless of the cause, size, or depth of the burn. Despite advances in topical wound care and pharmacology, and a growing emphasis on palliative care, wound care is the main source of the pain associated with burn injury. A deeper understanding of the many aspects of treating burns and their associated pain can help nurses to provide more effective analgesia. In this two-part article, the author explores burn pain and its treatment from a nursing perspective. Part 1 provides an overview of burn injury and addresses the wound care-related causes of burn pain as well as its assessment and treatment. Part 2 will address the psychosocial aspects of burn pain and will provide a more in-depth discussion of pain management and topical medications.
Citation: Journal of Burn Care & Research, 01 March 2009, vol./is. 30/2(281-287), Author: Whitehead C
Abstract: Although most occupational and physical therapists in an acute burn care setting use similar therapeutic practices, the time frames at which these therapeutic interventions are carried out vary according to the burn centers’ practices. The purpose of this survey was to investigate current trends in burn rehabilitation and compare the results with a similar survey performed in 1994. The survey was designed in a similar fashion to the 1994 survey to ascertain common trends in burn rehabilitation. The survey was sent to 100 randomly selected burn care facilities throughout the United States and Canada. Content included rehabilitation interventions, including evaluation, positioning, splinting, active range of motion, passive range of motion, ambulation, as well as the cross-training of therapists. Significant increases in the percentages of burn centers initiating common therapy practices were found. Positioning (41% increase), active range of motion (48% increase), passive range of motion (52% increase), and ambulation (29% increase) were all found to have increases in the number of burn centers employing these practices in the same time frame. Overall comparison from 1994 to 2006 shows that common therapy techniques are being initiated earlier in the patient’s acute burn stay. These results are consistent with recent medical trends of earlier acute discharges and more focus on outpatient rehabilitation.

10. Mepitel: a non-adherent wound dressing with Safetac technology.
Citation: British Journal of Nursing , 08 January 2009, vol./is. 18/1(58-64), Author(s): White R; Morris C
Abstract: Objective: Wound pain and tissue trauma are two main considerations of wound management, and appropriate dressing selection plays an important role in both. Traditional dressings may adhere to wounds resulting in significant pain and trauma to new tissue upon removal. The development of primary wound contact materials has provided a unique approach to solving this problem. This article aims to aid clinicians in identifying wound types on which Mepitel(R), a primary wound contact dressing with Safetac(R) soft silicone adhesive technology, can be used by summarizing the published clinical literature relating to its use. Method: Searches of bibliographic databases and internet sites were supplemented with manual searches of journals of relevance to wound management for clinical data relating to the use of Mepitel. Results: The literature search identified a number of articles, presenting data generated from randomized controlled trials, non-randomized controlled trials and case study evaluations of Mepitel on a wide range of wound types and skin injuries. Conclusion: The results of the clinical evaluations demonstrate that Mepitel is associated with a traumatic and virtually pain-free dressing changes. The dressing with Safetac can be used cost-effectively in the treatment of a wide range of wound types and skin injuries.

11. Topical management of facial burns.
Citation: Burns, 01 November 2008, vol./is. 34/7(903-911) Author(s): Leon-Villapalos J; Jeschke MG;
Abstract: The face is the central point of the physical features of the human being. It transmits expressions and emotions, communicates feelings and allows for individual identity. It contains complex musculature and a pliable and unique skin envelope that reacts to the environment through a vast network of nerve endings. The face hosts vital areas that make phonation, feeding, and vision possible. Facial burns disrupt these anatomical and functional structures creating pain, deformity, swelling, and contractures that may lead to lasting physical and psychological sequelae. The management of facial burns may include operative and non-operative treatment or both, depending on the depth and extent of the burn. This paper intends to provide a review of the available options for topical management of facial burns. Topical agents will be defined as any agent applied to the surface of the skin that alters the outcome of the facial burn. Therefore, the classic concept of topical therapy will be expanded and developed within two major stages: acute and rehabilitation. Comparison of the effectiveness of the different treatments and relevant literature will be discussed.

12. Assessment of burn depth and burn wound healing potential.
Citation: Burns), 01 September 2008, vol./is. 34/6(761-769), Author(s): Monstrey S; Hoeksema H;
Abstract: The depth of a burn wound and/or its healing potential are the most important determinants of the therapeutic management and of the residual morbidity or scarring. Traditionally, burn surgeons divide burns into superficial which heal by rapid re-epithelialization with minimal scarring and deep burns requiring surgical therapy. Clinical assessment remains the most frequent technique to measure the depth of a burn wound although this has been shown to be accurate in only 60-75% of the cases, even when carried out by an experienced burn surgeon. In this article we review all current modalities useful to provide an objective
assessment of the burn wound depth, from simple clinical evaluation to biopsy and histology and to various perfusion measurement techniques such as thermography, vital dyes, video angiography, video microscopy, and laser Doppler techniques. The different needs according to the different diagnostic situations are considered. It is concluded that for the initial emergency assessment, the use of telemetry and simple burn photographs are the best option, that for research purposes a wide range of different techniques can be used but that, most importantly, for the actual treatment decisions, laser Doppler imaging is the only technique that has been shown to accurately predict wound outcome with a large weight of evidence. Moreover this technique has been approved for burn depth assessment by regulatory bodies including the FDA.

13. Skin grafting in burns.
Citation: Wounds: A Compendium of Clinical Research & Practice, 01 July 2008, vol./is.20/7(199-202),
Author(s): Paul CN
Abstract: The purpose of this article is to review the history of skin grafting in burn injuries. A Medline and Google search were performed on the key words, skin graft, autograft, allograft, xenograft, burn surgery, burn excision, and burn grafting. The articles were reviewed and the additional references were provided by the bibliographies of these articles, which were also reviewed. The history of skin grafting in burn injury is traced from before the birth of Christ to present day. The first publication of successful skin grafts for wounds was authored by Swiss surgeon J.L. Reverdin in 1869. Progression in graft improvement was slow. The 1930s brought mechanical dermatomes into practice, while the mechanical mesher was not introduced until the 1960s. Finally, the practice of early excision and grafting, which is the cornerstone of burn care today, became common practice.

14. Skin substitutes in burn care.
Citation: Wounds: A Compendium of Clinical Research & Practice, 01 July 2008, vol./is.20/7(203-205),
Author(s): Paul CN
Abstract: The history on the use of graft material aside from skin for both partial- and full-thickness burns was sought. Methods. Medline and Google searches were performed using the key words: skin graft, skin substitute, autograft, homograft, xenograft, heterograft, autograft, burn grafting, and burn coverage. Articles retrieved were visually scanned for applicability and those thought to apply were reviewed as were appropriate references obtained within the articles. Conclusion. There have been several technological advances in the grafting of burns with synthetic materials, but autograft remains the standard to which all other graft resources must be compared.

Citation: Burns, 01 December 2007, vol./is. 33/8(979-985)
Author(s): Vlachou E; Chipp E;
Abstract: INTRODUCTION: Wound dressings containing silver have been in widespread use for many years. However, there are few quantitative data on the systemic absorption of silver or whether there is associated clinical risk. OBJECTIVES: To assess systemic silver levels when Acticoat dressings containing nanocrystalline silver were used, and to determine whether increases in such levels were associated with haematological or biochemical indicators of toxicity. METHOD: A prospective, single-centre, open-label study of 30 patients with relatively small burns that required skin grafting. Serum silver levels were measured before, during and at discontinuation of the use of the Acticoat dressings, and again at 3 and 6 months following completion of treatment. RESULTS: The median total postoperative wound size was 12% of the total body surface area. The median time to maximum silver levels was 9 days. The median maximum serum silver level was 56.8 microg/l. The median serum level at 6 months was 0.8 microg/l. There were no haematological or biochemical indicators of toxicity associated with the silver absorption observed in this study. CONCLUSION: This study has confirmed our view that Acticoat products are safe for use on burns and they remain a standard part of treatment at our centre.

Citation: Burns, 01 November 2007, vol./is. 33/7(872-878)
Author(s): Dhar S; Saraf R; Gupta AK; Raina B
Abstract: A prospective comparative study of skin grafting of chronic wounds with and without surgical removal of granulation tissue was done on 51 patients with an objective of finding a better method of skin...
grafting objectively in the chronic burns wounds. Comparative study was done on those patients who had wounds on both the sides of their body. Wounds present on the right side of the body labeled as Group A were skin grafted after removal of granulation tissue and wounds present on left side of the body labeled as Group B were skin grafted without removal of granulation tissue. There was no significant difference in the comparative bacteriology, graft uptake and cosmetic appearance of the grafts. We found no effect of bacteriology and chronicity of the wounds on the uptake of grafts in the two groups. Serum albumin levels <4g% was found to be associated with statistically significant decreased graft uptake only in Group A wounds. It was further observed that Group A wounds were associated with more blood loss, less secure haemostasis, prolonged surgical duration and thus more cost of surgery as compared to Group B wounds.

17. Xenoderm dressing in the treatment of second degree burns.
 Citation: Burns, 01 September 2007, vol./is. 33/6(776-781), Author(s): Hosseini SN; Mousavinasab SN; Abstract: BACKGROUND: In many countries the standard treatment of second degree burns includes the use of local antibacterial agents, frequent debridement of the wound, and frequent dressing changes, which are debilitating and costly. Since accurate information about alternative cures is scanty, this study was conducted to assess the outcome of the use of xenoderm biologic dressings as one alternative. MATERIALS AND METHODS: This descriptive, goal-oriented sampling study was performed on 97 subjects suffering from deep partial thickness burns. Additionally, some of them had superficial and third degree burns. The patients underwent surgical operation and xenoderm dressings. The outcome of xenoderm application was considered such as frequency of dressings, hospital stay, the duration of analgesia use, wound infection, and the formation of granulation and scars at the burns site. RESULTS: The results of this study indicate that the mean hospital stay from the time the patients were referred to the emergency ward was 6.45 +/-5.51 days and it was 4.69+/-.5.1 days from the time the operation was performed. The mean frequency of dressings in the interval between the use of xenoderm and the patients' discharge was 1.51+/-.1.60 times. 22.9% (22 patients) of the patients did not take any analgesic after the operation. 27.1% of the patients had superficial infection at the burns site. Granulation tissue was observed in 46.9% of the patients. CONCLUSION: The finding of the present study suggest that the use of xenoderm reduces the frequency of the dressings, Hospital stay, pain and analgesic. Therefore, the use of xenoderm in the treatment of second degree burns is recommended.

18. A different and safe method of split thickness skin graft fixation: medical honey application [corrected] [published erratum appears in BURNS 2009 Sep;35(6):909].
 Citation: Burns (03054179), 01 September 2007, vol./is. 33/6(782-787) Author(s): Emsen IM
 Abstract: Honey has been used for medicinal purposes since ancient times. Its antibacterial effects have been established during the past few decades. Still, modern medical practitioners hesitate to apply honey for local treatment of wounds. This may be because of the expected messiness of such local application. Hence, if honey is to be used for medicinal purposes, it has to meet certain criteria. The authors evaluated its use for the split thickness skin graft fixation because of its adhesive and other beneficial effects in 11 patients. No complications such as graft loss, infection, and graft rejection were seen. Based on these results, the authors advised honey as a new agent for split thickness skin graft fixation. In recent years there has been a renewed interest in honey wound management. There are a range of regulated wound care products that contain honey available on the Drug Tariff. This article addresses key issues associated with the use of honey, outlining how it may be best used, in which methods of split thickness skin graft fixations it may be used, and what clinical outcomes may be anticipated. For this reason, 11 patients who underwent different diagnosis were included in this study. In all the patients same medical honey was used for the fixation of the skin graft. No graft loss was seen during both the first dressing and the last view of the grafted areas. As a result, it has been shown that honey is also a very effective agent for split thickness skin graft fixations. Because it is a natural agent, it can be easily used in all skin graft operation for the fixation of the split thickness skin grafts.

19. Predictors of mortality: a comparison between two burn wound treatment policies.
 Citation: Burns, 01 March 2007, vol./is. 33/2(167-172), Author(s): Vehmeyer-Heeman M; Van Holder C;
 Abstract: Retrospective review of outcomes and experiences of a single burn centre between two time periods during which a new wound care technique was employed after the first period. The time period was divided into two: 1977-1984 and 1984-1990. Due to the use of cerium nitrate-silver sulphadiazine, the introduction of serial excision and grafting became possible in the second time period. Multivariate risk-analysis was done by logistic regression analysis. The mortality rate decreased from 13.7% (1997-1983) to

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4.7% (1984-1990). Results of multiple logistic regression analysis indicate that the change in periods was advantageous for patients with >50% TBSA, within the age group, 0 to 30 years. Obviously, the care which a patient receives has improved significantly. Many developments occurred simultaneously and it appears impossible to conclude that only the use of cerium nitrate-silver sulphadiazine was the reason for improved survival. Nevertheless, the use of cerium nitrate-silver sulphadiazine enables sequential excision and grafting and in consequence allows for many of these developments to occur.

20. Electrical and lightning injuries.
Citation: Journal of Burn Care & Research, 01 March 2007, vol./is. 28/2(255-261) Author(s): Maghsoudi H; Abstract: The aim of this study was to explore the mechanisms, complications, morbidity, and mortality associated with electrical injuries. Of 5053 acute burn admissions during a 5-year period, 202 patients (4%) had electrical burn injuries. Their mean age was 27.5 years (range, 3-71 years). Ninety-eight percent were male, and the extent of burn ranged from 1% to 70% TBSA (mean, 10.5 +/- 10.7% TBSA). High-voltage electricity caused 54% of the electrical injuries. Forty-two percent were caused by low-voltage currents and 4% by lightning. A total of 217 surgical procedures were performed on 202 patients Fifteen patients (7.4%) required amputation. All patients who had abnormal electrocardiograms underwent cardiac monitoring. Four had cardiac complications. Mean hospital stay was 13.9 +/- 14.6 days (range, 1-90). Four patients (2%) died. Electrical burn injuries continue to be a serious problem of modern society. Climbing power poles is the most common mechanism for high-voltage injury. Special consideration is required to prevent this type of injury in our region.

21. Two simple leg net devices designed to protect lower-extremity skin grafts and donor sites and prevent decubitus ulcer.
Citation: Journal of Burn Care & Research, 01 January 2007, vol./is. 28/1(115-119) Author(s): Hedman TL; Chapman TT; Dewey WS; Quick CD; Wolf SE; Holcomb JB Abstract: Burn therapists routinely are tasked to position the lower extremities of burn patients for pressure ulcer prevention, skin graft protection, donor site ventilation, and edema reduction. We developed two durable and low-maintenance devices that allow effective positioning of the lower extremities. The high-profile and low-profile leg net devices were simple to fabricate and maintain. The frame was assembled using a three-quarter-inch diameter copper pipe and copper fittings (45 degrees, 90 degrees, and tees). A double layer of elasticized tubular netting was pulled over the frame and doubled back for leg support to complete the devices. The devices can be placed on any bed surface. The netting can be exchanged when soiled and the frame can be disinfected between patients using standard techniques. Both devices were used on approximately 250 patients for a total of 1200 treatment days. No incidence of pressure ulcer was observed, and graft take was not adversely affected. The devices have not required repairs or replacement. Medical providers reported they are easy to apply and effectively maintain proper positioning throughout application. Neither device interfered with the application of other positioning devices. Both devices were found to be an effective method of positioning lower extremities to prevent pressure ulcer, minimize graft loss and donor site morbidity, and reduce edema. The devices allowed for proper wound ventilation and protected grafted lower extremities on any bed surface. The devices are simple to fabricate and maintain. Both devices can be effectively used simultaneously with other positioning devices.

22. A review of the use of a dermal skin substitute in burns care.
Citation: Journal of Wound Care, 01 September 2006, vol./is. 15/8(373-376), Author(s): Nguyen DQA; Abstract: Integra is the most widely accepted synthetic skin substitute to be developed for use in burns patients. This literature review explores its evolution and discusses the advantages and disadvantages of its use in burn wound care.
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