

## Wound digest

This digest summarises some of the key papers published on issues related to wound management

### SELECTED PAPERS OF INTEREST

1. W.A.R. scores in patients with chronic leg ulcers: Results of a multicentre study.
2. Gunshot wounds and blast injuries to the face are associated with significant morbidity and mortality: Results of an 11-year multi-institutional study of 720 patients.
3. Antibiotics and antiseptics for venous leg ulcers (Review).
4. Analysis of MRI for acute Charcot foot diagnosis
5. Optimal rocker shoe design for individuals with no diabetic foot
6. Cost of care using prophylactic negative pressure wound vacuum on closed laparotomy incisions

### 1 W.A.R. scores in patients with chronic leg ulcers: Results of a multicentre study

Readability	✓	✓	✓	✓	✓
Relevance to daily practice	✓	✓	✓	✓	✓
Novelty factor	✓	✓	✓	✓	✓

- Differentiating between individuals with “problematic colonised wounds”, “wounds at increased risk of infection” and “wound infection” is of crucial importance to both the patient and the clinician, in order to identify and put in place a sufficient and effective treatment regimen.
- The authors conducted a multicentre study to assess a patient’s risk of wound infection by using the wounds-at-risk (W.A.R.) score, which is a clinical test designed by interdisciplinary experts. Point values are assigned to individual patients with a score of  $\geq 3$  indicating that antimicrobial treatment is required.
- A total of 10 dermatological wound clinics in Germany were chosen for the study with 970 patients comprising the dataset (553 women, 417 men). The mean age was 69.8 years, ranging from 10 to 100 years of age and the mean duration of the leg ulcer was 41.1 months. The mean wound size was 42.8cm<sup>2</sup>.
- The authors’ study was the first to evaluate clinical data using W.A.R. scores and it was found that 26.9% of patients displayed overall scores of  $< 3$  points, while 73.1% had scores of  $\geq 3$  points.
- The findings taken from this study show that W.A.R. scores enable the clinician to better identify those at increased risk of wound infections. Even clinicians with less experience can use the tool to easily and quickly identify risk.

Jockenhöfer F, Gollnick H, Herberger K et al (2014) W.A.R. scores in patients with chronic leg ulcers: Results of a multicentre study. *J Wound Care* 23(1) 5–12

### 2 Gunshot wounds and blast injuries to the face are associated with significant morbidity and mortality: Results of an 11-year multi-institutional study of 720 patients

Readability	✓	✓	✓	✓	✓
Relevance to daily practice	✓	✓	✓	✓	✓
Novelty factor	✓	✓	✓	✓	✓

- The wounds created due to gunshot and blast injuries to the face (GSWBIF) are complex and the authors highlighted that there has previously been little research undertaken in this field, despite relatively high morbidity and mortality rates.
- Between January 1 2000 and December 31 2010, the authors carried out a multicentre retrospective cohort analysis of individuals with GSWBIF. The purpose was to identify and describe the factors associated with adverse outcomes.
- During the 11-year study period, some 720 patients with GSWBIF were treated by the authors – 539 were men, 181 were women and the median age was 29 years – and 185 patients died (26%). Of these, 146 died within 48 hours.
- As well as 26% mortality in the study group, 38% of those patients who were hospitalised for a longer period than 48 hours had complications (n=184) with the authors suggesting this was likely related to the admission physiology and the injury severity.
- These types of injuries require a multidisciplinary approach, as well as significant resource allocation. It was concluded that due to the high mortality and morbidity rates associated with GSWBIF, there is a necessity for the development of effective guidelines and a uniform approach to the treatment of this patient group.

Shackford SR, Kahl JE, Calvo RY et al (2014) Gunshot wounds and blast injuries to the face are associated with significant morbidity and mortality: Results of an 11-year multi-institutional study of 720 patients. *J Trauma Acute Care Surg* [Epub ahead of print]

### 3 Antibiotics and antiseptics for venous leg ulcers (Review)

Readability	✓	✓	✓	✓	✓
Relevance to daily practice	✓	✓	✓	✓	✓
Novelty factor	✓	✓	✓	✓	✓

- The authors set out to determine the effects of the two main strategies used to prevent and treat clinical infection in venous leg ulcers, namely, systemic antibiotics and topical antibiotics or antiseptics.
- A review was carried out of the Cochrane Wounds Group Specialised Register, the Cochrane Central Register of Controlled Trials, Ovid MEDLINE, Ovid EMBASE, and EBSCO CINAHL databases with the selection criteria being randomised controlled trials (RCTs) that focused on venous

leg ulceration and that evaluated at least one systemic antibiotic, topical antibiotic or topical antiseptic. In terms of data collection, a standardised data extraction form was used to collate information on patient characteristics, interventions and outcomes.

- A total of 45 RCTs were included in the review, which covered 4486 individuals. Ulcer infection status at baseline and at follow-up was found to vary across the RCTs chosen, while few of these trials proved to contain a reliable estimate relating to healing times.
- During their review, the authors found some evidence to suggest cadexomer iodine is effective in terms of topical preparations, while the literature does not support the routine use of honey- or silver-based products. Meanwhile, they conclude that further research is warranted to ascertain the effectiveness of particular antibacterial agents. The assertion is that clinicians must be mindful of increased concerns about bacterial resistance when using antibacterial treatments.

O'Meara S, Al-Kurdi D, Ologun Y et al (2014) Antibiotics and antiseptics for venous leg ulcers (Review). *Cochrane Database Syst Rev* 10(1): CD003557

#### 4 Analysis of MRI for acute Charcot foot diagnosis

Readability	✓	✓	✓	✓	
Relevance to daily practice	✓	✓	✓	✓	
Novelty factor	✓	✓	✓	✓	

- This retrospective, observational, cohort study over a 12-year period, reviewed the management of all acute Charcot foot (ACF) cases, in one outpatient clinic, diagnosed by magnetic resonance imaging (MRI).
- Treatment included complete offloading and immobilisation of the affected foot, and, within 3 days, a removable total contact cast (TCC) and crutches were provided.
- From the medical charts of 59 patients with a total of 71 ACF cases, it was deduced that ACF healing is more efficient when it is diagnosed at stage 0 rather than stage 1 ( $P=0.0012$ ).
- Patients that reported foot pain were significantly more able to recall when a trauma had occurred than those that did not have foot pain. However, those with foot pain did not attend the clinic any earlier.
- In total, 70% of those diagnosed at ACF stage 0, and 32% of those diagnosed at ACF stage 1 healed without deformity ( $P=0.002$ ).
- The authors noted that MRI was essential for ACF diagnosis at stage 0 as unremarkable X-ray results often led to misdiagnosis.
- No amputations or further surgery had occurred 4 years after healing.
- The authors note one limitation of the study as the fact there was no control cohort where ACF was managed on the basis of X-ray.

Chantelau EA, Richter A (2013) The acute diabetic Charcot foot managed on the basis of magnetic resonance imaging – a review of 71 cases. *Swiss Med Wkly* 143: w13831

#### 5 Optimal rocker shoe design for individuals with no diabetic foot

Readability	✓	✓	✓		
Relevance to daily practice	✓	✓	✓		
Novelty factor	✓	✓	✓		

- This is the first study to attempt to find the optimum rocker shoe design for individuals with low-risk diabetes. Twelve shoe designs in a variety of values for the apex angle, apex position and rocker angle (plus a flexible control) were tested.
- In total, 24 people with low-risk diabetes with no previous foot complications, and 24 healthy participants walked a 20 m walkway at 1 m/s  $\pm$  10% distance in each shoe design (25–35 continuous steps per shoe).
- Peak plantar pressure was measured for the 1st metatarsophalangeal (MTP) joint, 2nd–4th metatarsal head (MTH), hallux, 5th MTH and heel.
- When the apex angle was incrementally increased from 70° to 100°, the biggest reduction in pressure relative to the control shoe was observed in the 2nd–4th MTH regions (39%).
- There was no clear trend in foot pressures across the foot when varying the apex position from 50% to 70%.
- When the rocker angle was increased from 10° to 30°, there was a decrease in peak pressure under the 5th MTH.
- The results suggest that for the optimum shoe design a 95° apex angle, an apex position of 60% of shoe length and a 20° rocker angle should be considered.

Chapman JD, Preece S, Braunstein B et al (2013) Effect of rocker shoe design features on forefoot plantar pressures in people with and without diabetes. *Clin Biomech* 28(6): 679–85

#### 6 Cost of care using prophylactic negative pressure wound vacuum on closed laparotomy incisions

Readability	✓	✓	✓		
Relevance to daily practice	✓	✓	✓		
Novelty factor	✓	✓	✓		

- The authors sought to determine the decrease in wound complication rate needed to justify prophylactic negative pressure wound vacuum therapy (NPWT) compared to routine incision care (RC), in terms of cost savings, following laparotomy for gynaecologic malignancy.
- A decision model was made from a third-party payer perspective to compare NPWT and RC; the primary model outcome was average incision care cost using each strategy. Clinical parameter estimates (wound complication rates, re-hospitalisation, antibiotic use, re-operation and home health care) were taken from a published cohort of 431 women who underwent laparotomy for endometrial cancer between 2002–2007.
- Wound complication rate was 31%. The overall cost saving was US\$104 for NPWT with the lowest cost of this therapy US\$200.
- Prophylactic NPWT has the potential to be a cost saving treatment option if wound complication rate is reduced by a third or more.

Lewis LS, Convery PA, Bolac CS et al (2014) Cost of care using prophylactic negative pressure wound vacuum on closed laparotomy incisions. *Gynecol Oncol* [epub ahead of print]



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\*Estimated from wear time, trust demographic and audit data<sup>1,2,3</sup>

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\*Estimated from wear time, trust demographic and audit data<sup>1,2,3</sup>

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Smith & Nephew  
Medical Ltd  
101 Hessele Road  
Hull HU3 2BN  
UK  
T +44 (0) 1482 225181  
F +44 (0) 1482 328326

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