

Lower limb complications

Organisation



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As well as being one of the most innovative thinkers in the world of the diabetic foot, Professor William Jeffcoate has debunked many of the new “advanced” therapies in diabetic foot care.

As I have previously commented in this column, the effectiveness of such therapies — which include new dressings, silver technologies and wound bed gels — will always be hard to prove. Given that randomised control trials (RCTs) and meta-analyses are the life-blood of evidence-based care, the variance in foot ulcers would require patient populations too big to be economically viable. However, this does not minimise the impact of two of the article summarised in this quarter’s edition of *Diabetes Digest*: Game et al (2012; summarised below) and Jeffcoate (2012; summarised alongside).

As lead author of a review by the International Working Group of the Diabetic Foot (a special interest group of the International Diabetes Federation), Game et al look at the period from 2006–2010 for studies of interventions in diabetic foot care that had positive outcome. Of the 1332 considered, only 43 articles were worthy of full text review and reporting. This is less than 4% of the original citations and should encourage all of us to publish better

quality clinical studies in diabetic foot care.

The dismal levels of evidence available to Game et al meant that conclusions on newer therapies are limited. Only hyperbaric oxygen therapy, and to a lesser extent topical negative pressure therapy, were found to be associated with evidence strong enough to justify their use.

This leads to another piece of finely honed prose from Jeffcoate. He poses the question: If so-called advanced therapies have little to offer then what should we be doing for the person with diabetes and a foot ulcer? His conclusions are simple and I wholeheartedly agree with them: (i) agree outcomes with the patient to improve adherence to treatment; and (ii) provide the best general wound management and do so consistently and as early in the development of the ulcer as possible. There is no evidence that dressings alone heal ulcers or prevent amputations.

Multidisciplinary diabetic foot care teams working with their patients in a consistent manner make the biggest difference and it is, as Jeffcoate puts it, “the availability or otherwise of prompt expert advice which is the principal explanation of the major variations that are known to exist in the incidence of amputation even within single countries.” Yet more reason to promote a multidisciplinary team in every major hospital treating people with diabetes.

DIABETES METAB RES REV

Healing diabetic foot wounds – a practical algorithm

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓✓

1 A range of interventions are available to the clinician treating a diabetic foot ulcer; there is more or less evidence for the efficacy of given interventions.

2 In the present article, the author aimed to develop a practical algorithm for promoting the healing of open diabetic foot wounds, which are frequently associated with delayed healing, reduced quality of life and secondary infection.

3 The author stressed the need to discuss wound management with the patient, and whenever possible families or other carers as well; patients and their carers should be involved in decision-making.

4 Wound management centres on: documenting the wound and patient histories; determining the relative contributions of different causative factors (e.g. neuropathy, peripheral vascular disease); debriding and cleansing the wound; microbiological sampling if infection is suspected; agreeing a management plan with the patient/carer; initiating antibiotic treatment if clinical signs of infection are present; considering the need for vascular assessment or intervention; protecting the wound with dressings and offloading/protective footwear; regular review and emergency access to care should the ulcer worsen.

5 The author concludes that the structure of care also has a major impact on outcomes; access to an expert multidisciplinary team reduced the incidence of major amputation, and non-specialists must be aware of services and the need for early expert assessment of diabetic foot ulceration.

Jeffcoate W (2012) Wound healing – a practical algorithm. *Diabetes Metab Res Rev* **28**: 85–8

DIABETES METAB RES REV

Interventions to enhance the healing of chronic ulcers

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓✓

1 There is continuing uncertainty concerning optimal approaches for managing diabetic foot ulcers.

2 In 2006 the International Working Group of the Diabetic Foot undertook a systematic review of the evidence to

inform protocols for routine care and to highlight areas which should be considered for further study.

3 The same working group has now updated this review by considering papers on the interventions to improve the healing of chronic ulcers.

4 The authors conclude that with the exception of hyperbaric oxygen therapy and, possibly, negative pressure wound therapy, there is little published evidence to justify the use of newer therapies.

Game F, Hinchliffe R, Apelqvist J et al (2012) A systematic review of interventions to enhance the healing of chronic ulcers of the foot in diabetes. *Diabetes Metab Res Rev* **28**: 119–141

DIABETIC FOOT & ANKLE

Partial first ray amputation not a durable solution

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓✓

1 Partial first ray amputation is often undertaken in an effort to address non-healing ulceration and preserve maximum foot length, and avoid more proximal, mobility-restricting, lower-limb amputations. However, the re-amputation rate in those with prior partial first ray amputation of the diabetic foot is unknown.

2 The authors of this study aimed to determine the re-amputation rate following any form of partial first ray amputation in people with diabetes and peripheral neuropathy.

3 A systematic review of studies involving partial first ray amputation associated with diabetes and peripheral sensory neuropathy but without critical limb ischaemia was undertaken.

4 A search of the literature yielded 24 articles; five (20.8%) articles met the authors' inclusion criteria. Cumulatively, the five included articles reported 435 individual partial first ray amputations in people of mean age 59 years, with a mean follow-up of 26 months post-first amputation.

5 Meta-analysis revealed that one out of every five people who underwent any form of partial first ray amputation went on to require more proximal re-amputation during follow-up.

6 The authors concluded that partial first ray amputation in people with diabetes and peripheral neuropathy may not represent a durable, foot-sparing amputation and that a more proximal amputation may be more beneficial; the authors acknowledge the limitations of the available data.

Borkosky S, Roukis T (2012) Incidence of re-amputation following partial first ray amputation associated with diabetes mellitus and peripheral sensory neuropathy: a systematic review. *Diabet Foot Ankle* Jan 20 [Epub ahead of print]

DIABETIC MEDICINE

Outcome for negative percutaneous bone biopsy patients

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

1 To assess the outcome of people with diabetes and suspected osteomyelitis of the foot who had undergone a percutaneous bone biopsy that yielded negative microbiological results the authors undertook this study.

2 Medical charts of adults ($n=41$; mean age 58.1 ± 9.6 years) with diabetes with a negative percutaneous

biopsy were reviewed and outcome evaluated at ≥ 2 years after initial biopsy. Results of subsequent biopsies and bone imaging were evaluated when applicable.

3 On follow-up (mean 41.2 ± 22.5 months) 25 people's wounds remained unhealed, 15 of whom had a new bone biopsy performed. Osteomyelitis at the site of initial biopsy was confirmed during follow-up in six patients (14.6%) and was suspected in four additional patients (9.7%).

4 The authors concluded that among those who return a negative bone biopsy, only one in four will develop osteomyelitis within 2 years of biopsy.

Senneville E, Gaworowska D, Topolinski H et al (2012) Outcome of patients with diabetes with negative percutaneous bone biopsy performed for suspicion of osteomyelitis of the foot. *Diabet Med* **29**: 56–61

DIABETOLOGIA

CKD a risk factor for poor diabetic limb outcome

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 The authors aimed to stratify the risk factors affecting people with diabetes and a foot ulcer or gangrene requiring infrainguinal revascularisation.

2 The study cohort comprised 597 people with diabetes in whom

732 revascularisation procedures had been performed to treat lower-limb ulcer or gangrene.

3 Logistic regression analysis showed chronic kidney disease (CKD) class (odds ratio, 1.38; 95% confidence interval, 1.16–1.65) to be an independent predictor of leg salvage at 1-year follow-up.

4 The authors concluded that CKD is a strong risk factor for amputation following infrainguinal revascularisation in people with diabetes and foot ulcer or gangrene.

Venermo M, Biancari F, Arvela E et al (2011) The role of chronic kidney disease as a predictor of outcome after revascularisation of the ulcerated diabetic foot. *Diabetologia* **54**: 2971–7

INT WOUND J

Identifying ulcers that are unlikely to heal by 12 weeks

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

1 Delayed healing of diabetic foot ulcers can increase the risk of infection and likelihood of amputation.

2 This analysis included intent-to-treat control participant data from two previously published randomised trials, from which the authors aimed to identify

ulcers that are unlikely to heal following 12 weeks' treatment.

3 In 120 people who achieved $\geq 50\%$ area reduction by week 4, 62 (52%) failed to heal by 12 weeks; deviations from the predicted healing course were evident at 6 weeks for non-healing ulcers; 2-week delay in healing significantly lowered healing rates ($P=0.001$).

4 The authors concluded that stalling in wound healing for ≥ 2 weeks is indicative of failure to heal, regardless of early positive healing progress.

Warriner R, Snyder R, Cardinal M (2011) Differentiating diabetic foot ulcers that are unlikely to heal by 12 weeks following achieving 50% percent area reduction at 4 weeks. *Int Wound J* **8**: 632–7

“Partial first ray amputation in people with diabetes and peripheral neuropathy may not represent a durable, foot-sparing amputation and a more proximal amputation may be more beneficial.”