

Lower limb complications

The status quo?



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With the benefits and limitations of evidence-based medicine forming a large part of this year's Diabetic Foot Journal Conferences, my selection of articles for this quarter mainly assess guidelines, their uses and limitations. I am particularly heartened by the review by Monteiro-Soares et al (2011; summarised alongside), which challenges the current systems of risk stratification for predicting diabetic foot ulceration.

Monteiro-Soares et al look at the main risk stratification systems used across the world and describe what measures they include and if they have been validated. Interestingly, of the five systems tested, none were identical, neither in the variables used to assign risk, nor in the risk categories that were assigned to individuals. In addition, few systems have had their ability to predict future diabetic foot disease validated by epidemiological study. The authors say: "The quality of evidence for these systems is low, as little validation of their predictive value has been done."

As might be expected, the presence or absence of neuropathy, vascular disease and foot deformity, along with a history of ulceration or amputation, form the backbone of most risk stratification systems. However, the significance of each variable, and the way in which risk is

assigned, Monteiro-Soares et al reveal, varies enormously. Although the Scottish Intercollegiate Guidelines Network (2010) foot risk system gets some of the authors' highest praise, it seems clear that low-risk people in all systems have a low risk of foot ulceration, and the positive predictive value of risk categories varies enormously. The specificity of these systems is generally low, given that large numbers of "moderate-risk" feet will never ulcerate.

In my view, maintaining the status quo is not enough, and Monteiro-Soares et al appear to agree. Diabetic foot risk stratification systems need to be tested further and their clinical worth reviewed. This will require either a back-to-basics approach to validating the tests used in deriving each system, or a redesign of the risk groups to better guide clinical teams on the level of foot care required by each risk group.

Finally, I would like to highlight Rao et al's (2010; summarised below) review of osteomyelitis. Although not specifically describing diabetic foot ulceration, this article gives an excellent overview of the mechanisms and treatment of osteomyelitis and advice – based on clinical experience as well as the limited evidence available – on antibiotic selection and duration.

Scottish Intercollegiate Guidelines Network (2010) *Management of Diabetes*. CG 116. SIGN, Edinburgh

DIABETOLOGIA

Evidence quality and validation poor for most ulcer risk tools

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

1 Several risk stratification systems for predicting development of diabetic foot ulcers have been described in the literature. However, few data have been published on the systems' similarities and differences, diagnostic accuracy and evidence base.

2 The authors conducted a systematic review of the existing foot ulcer risk stratification systems.

3 Publications until April 2010 describing the creation or validation of a risk stratification systems for the prediction of diabetic foot ulcer development were included in the study.

4 Thirteen studies were found, all of which evaluated one or more of the following stratification tools: University of Texas; International Working Group on Diabetic Foot; Scottish Intercollegiate Guidelines Network (SIGN); American Diabetes Association; and Boyko et al.

5 Five variables were included in almost all the systems: diabetic neuropathy, peripheral vascular disease, foot deformity, previous foot ulcer and amputation. The number of variables included ranged from four to eight, and the number of risk groups from two to six.

6 The SIGN system showed some higher diagnostic accuracy values, particularly positive likelihood ratio. Predictive ability was externally validated only for Boyko et al.

7 The authors concluded that foot ulcer risk stratification systems are a much needed tool, but the quality of evidence for these systems is low and validation is poor.

Monteiro-Soares M, Boyko EJ, Ribeiro J et al (2011) Risk stratification systems for diabetic foot ulcers: a systematic review. *Diabetologia* **54**: 1190–9

PLASTIC AND RECONSTRUCTIVE SURGERY

Osteomyelitis best managed by an MDT

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

1 Osteomyelitis (OM) is an inflammatory disorder of bone caused by infection and may become chronic and cause persistent morbidity.

2 In this nonsystematic review the authors sought to establish guidance on the medical and surgical management of OM.

3 OM requires systemic antibiotic therapy, usually systemic but sometimes supplemented by antimicrobial beads or cement. Chronic OM usually requires surgery.

4 Evidence for optimal treatment and therapy durations for OM are largely based on expert opinion, case series and animal models.

5 It was concluded that OM is best managed by a multidisciplinary (MDT) team acting to optimise host defences, provide appropriate antimicrobial therapy, and undertake surgery.

Rao N, Ziran BH, Lipsky BA (2011) Treating osteomyelitis: antibiotics and surgery. *Plast Reconstr Surg* **127**(Suppl 1): S177–87

PLASTIC AND RECONSTRUCTIVE SURGERY

Offloading the ulcerated foot

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

1 Elevated plantar pressure is a causative factor in the development of many plantar ulcers among people with diabetes.

2 The authors reviewed the evidence for offloading of plantar pressures to prevent and heal foot ulcers.

3 No consensus was found in the literature regarding the role of offloading through footwear for the primary or secondary prevention of ulcers. The authors suggested that this was likely due to the diversity of intervention and control conditions tested, the lack of data on offloading efficacy of the footwear used, and the absence of a target pressure threshold for offloading.

4 USA and European data demonstrate a large discrepancy between offloading guidelines and clinical practice in the management of the ulcerated diabetic foot. Many clinics continue to use methods that are known to be ineffective or that have not been proven to be effective, and fail to use methods that have been demonstrated to be effective.

5 The authors reported that a variety of strategies have been proposed to address the poor provision of effective offloading for people with active foot ulceration, notably the adoption and implementation of evidence-based international guidelines by professional societies in the USA and Europe.

6 It was concluded that the often poor current outcomes for diabetic plantar ulcers could be improved by the implementation of guidelines and techniques that have been proved effective for offloading in this population.

Cavanagh PR, Bus SA (2011) Off-loading the diabetic foot for ulcer prevention and healing. *Plast Reconstr Surg* **127**(Suppl 1): S248–56

JOURNAL OF WOUND CARE

Fungi are more important wound pathogens than previously reported

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

1 To assess the incidence, abundance and species diversity of fungi in chronic wounds, as well as to describe the associations of major fungi populations, the authors retrospectively evaluated molecular diagnostic reports from 915 chronic wounds.

2 Of the specimens, 23% were positive for fungal species. The most abundant fungi were yeasts in the genus *Candida*; *Curvularia*, *Malessezia* and *Aureobasidium* were also common.

3 A notable bacterial–fungal negative correlation was found between *Staphylococcus* and *Candida*.

4 There were significant relationships between both bacterial and fungal genera and the sex, diabetes status and cardiovascular comorbidities of the participants.

5 The authors concluded that fungi are more important wound pathogens than previously reported.

Dowd SE, Delton Hanson J, Rees E et al (2011) Survey of fungi and yeast in polymicrobial infections in chronic wounds. *J Wound Care* **20**: 40–7

“There were significant relationships between both bacterial and fungal genera and the sex, diabetes status and cardiovascular comorbidities of the participants.”

PLASTIC AND RECONSTRUCTIVE SURGERY

Prevention most cost-effective for diabetes amputations

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

1 Evaluation of the clinical and economic impact of medical care is becoming more important as the population with diabetes increases and healthcare budgets shrink. The authors reviewed the economic impact of

preventative therapies, wound care and peripheral vascular disease interventions to prevent diabetes-related amputations.

2 Length of hospital stay and intensive care drive the cost of treatment. Surgical intervention and complications for foot ulcers, amputations and peripheral vascular disease are significant factors in the cost of limb salvage.

3 The authors concluded that prevention and evidenced-based treatments are the most cost-effective ways of conserving resources and prolonging productive lifestyles.

Hunt NA, Liu GT, Lavery LA (2011) The economics of limb salvage in diabetes. *Plast Reconstr Surg* **127**(Suppl 1): S289–95

J NEUROLOGY, NEUROSURGERY AND PSYCHIATRY

One-fifth taking ADs for neuropathic pain relief discontinue due to side-effects

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

1 The authors present an updated version of the original Cochrane review (2005) on the use of antidepressant (AD) drugs to manage

neuropathic pain, including diabetic peripheral neuropathy.

2 Randomised controlled trials of AD use for neuropathic pain were identified (61 trials) and analysed.

3 At least one-third of people treated with traditional ADs achieved at least moderate pain relief; however, one-fifth discontinued AD therapy due to adverse side-effects.

4 The authors concluded that this update provides additional confirmation of the effectiveness of ADs for the treatment of neuropathic pain.

Saarto T, Wiffen PJ (2010) Antidepressants for neuropathic pain: a Cochrane review. *J Neurol Neurosurg Psychiatry* **81**: 1372–3