

## Our pick of recently published papers with relevance to the care of the diabetic foot

**‘Although there is widespread use of topical agents and dressings that contain silver for the treatment of diabetic foot ulcers, no randomised clinical trials or controlled clinical trials exist that evaluate their clinical effectiveness.’**

### COCHRANE DATABASE OF SYSTEMATIC REVIEWS



#### Lack of trials that examine silver-based dressings

**1** This article reviewed the effects of silver-containing topical agents and dressings on infection rates and healing of foot ulcers in people with diabetes.

**2** The Cochrane Wounds Group Specialised Register, the Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE and CINAHL were searched.

**3** The *Journal of Wound Care* was hand-searched, researchers, manufacturers and international wound groups were contacted to find unpublished trials, and websites for wound groups and [www.worldwidewounds.com](http://www.worldwidewounds.com) were searched.

**4** Randomised controlled trials and non-randomised controlled clinical trials were eligible if they involved people with type 1 or type 2 diabetes and foot ulcers; met requirements for allocation, randomisation and concealment; compared the intervention with a placebo or sham dressing, an alternative non-silver-based dressing or no dressing; and reported outcomes representing healing rate or infection.

**5** No trials were identified as being eligible for inclusion in the review; in the absence of data it was not possible to perform planned analyses.

**6** Although there is widespread use of topical agents and dressings that contain silver for the treatment of diabetic foot ulcers, the authors conclude that no randomised clinical trials or controlled clinical trials exist that evaluate their clinical effectiveness.

Bergin SM, Wraight P (2006) Silver based wound dressings and topical agents for treating diabetic foot ulcers. *Cochrane Database of Systematic Reviews Issue 1*: CD005082

### THE JOURNAL OF BONE & JOINT SURGERY



#### Equinus deformity only leads to small pressure increase

**1** People with diabetes are prone to develop equinus (plantar flexion contractures), which could conceivably lead to increased forefoot plantar pressure during locomotion.

**2** The investigators aimed to determine the strength of this relationship by assessing forefoot pressure during walking, by means of a pressure mat (emed; Novel, Munich, Germany), in 27 adults with diabetes.

**3** A custom device (an ‘equinometer’) was used to apply a dorsiflexing

torque of 10Nm for 5 seconds to measure the maximum dorsiflexion of the ankle.

**4** Using linear regression, the relationship between equinus and peak forefoot pressure was found to be significant ( $P < 0.0471$ ).

**5** However, only a small amount of the variance in pressure was accounted for by the equinus – in other words, the relationship was a weak one.

**6** The investigators deduce that equinus thus has a limited role in high forefoot pressure.

**7** A major implication of this, the authors suggest, is that caution should be applied in carrying out tendon-lengthening surgery until more evidence is available.

Orendurff MS, Rohr ES, Sangeorzan BJ et al (2006) An equinus deformity of the ankle accounts for only a small amount of the increased forefoot plantar pressure in patients with diabetes. *The Journal of Bone & Joint Surgery* **88**(1): 65–8

### AGE AND AGEING



#### Rise in quality of life with reversal of diabetic neuropathy

**1** This study aimed to determine if restoration of sensation that was impaired due to diabetic peripheral neuropathy (DPN) would reduce the fear of falling and the number of falls and improve activities of daily living (ADLs) in a Medicare-aged population in the US.

**2** Participants comprised 252 people (with a mean age of 76 years) who had documented monochromatic near-infrared phototherapy-mediated symptomatic reversal of DPN (of a mean duration of 8.6 months).

**3** Participants responded to a health status questionnaire, after the symptomatic reversal of DPN.

**4** The fear of falling and the incidence of falls decreased within 1 month after reversal of peripheral neuropathy, and stayed low after 1 year.

**5** Improved ADLs were evident soon after reversal of peripheral neuropathy, and improved further after 1 year.

**6** Reversal of peripheral neuropathy in a clinician’s office and subsequent use of monochromatic near-infrared phototherapy at home was associated with a 79% decrease in balance-related fear of falling, 78% reduction in falls and a 72% increase in ADLs.

**7** The authors conclude that their results suggest that reversal of DPN has a substantial, favourable, long-term socioeconomic impact on people with DPN and the Medicare system in the US, and improves the quality of life for older people with diabetes and peripheral neuropathy.

Powell MW, Carnegie DH, Burke TJ (2006) Reversal of diabetic peripheral neuropathy with phototherapy (MIRETM) decreases falls and the fear of falling and improves activities of daily living in seniors. *Age and Ageing* **35**(1): 11–6

**‘Caution should be applied in carrying out tendon-lengthening surgery until more evidence is available.’**

## DIABETES CARE

### DCCT intensive-therapy group reap benefits 8 years on

- 1 The purpose of this study was to evaluate the impact of prior intensive treatment of diabetes on neuropathy in participants from the Diabetes Control and Complications Trial (DCCT).
- 2 Following the conclusion of the DCCT, participants from the intensive group were encouraged to maintain intensive therapy, and those from the conventional therapy group were encouraged to begin intensive therapy.
- 3 The Michigan Neuropathy Screening Instrument (MNSI) was used to assess neuropathy as part of the DCCT follow-up Epidemiology of Diabetes Intervention and Complications (EDIC) study; 1257 people participated in the neuropathy assessment of the first EDIC examination.
- 4 Based on the MNSI questionnaire or foot examination, it was found that the former intensive group of the DCCT showed a lower prevalence of neuropathy than the conventional-therapy group.
- 5 Signs and symptoms of neuropathy remained less prevalent among the former intensive group compared with the conventional group, despite similar levels of glycaemic control.
- 6 Prior intensive therapy at the beginning of the EDIC study reduced the odds of having signs and symptoms of neuropathy by 45% and 64%, respectively, with similar odds reductions observed for both neuropathic signs and symptoms across 8 years of follow-up.
- 7 The benefits of 6.5 years of intensive therapy on neuropathy status lasted for at least 8 years after the conclusion of the DCCT.

Martin CL, Albers J, Herman WH et al (2006) Neuropathy among the Diabetes Control and Complications Trial cohort 8 years after trial completion. *Diabetes Care* **29**(2): 340-4

## THE CLINICAL JOURNAL OF PAIN

### Validation of the Neuropathic Pain Scale

- 1 The purpose of this study was to assess the utility of evaluating the multiple components of neuropathic pain in an analgesic clinical trial.
- 2 A total of 159 people with diabetes-related foot pain were randomly assigned to receive an active opioid analgesic (controlled-release oxycodone) or placebo for 6 weeks; the Neuropathic Pain Scale (NPS) was administered prior to, during and after treatment.

- 3 The analgesic produced greater decreases in pain unpleasantness, global pain intensity, and sharp, dull and deep pain sensations than the placebo.
- 4 There was a higher rate of response to opioid treatment condition for intense, unpleasant, deep and surface pain, compared with the placebo.
- 5 The analgesic did not significantly reduce hot, cold, sensitive or itchy pain sensations relative to the placebo.
- 6 The use of the NPS as a tool to characterise the multidimensional nature of the experience of neuropathic pain, and for detecting changes in neuropathic pain with treatment, is thus supported, conclude the authors.

Jensen MP, Friedman M, Bonzo D, Richards P (2002) The validity of the neuropathic pain scale for assessing diabetic neuropathic pain in a clinical trial. *The Clinical Journal of Pain* **22**(1): 97-103

## ANNALS OF PLASTIC SURGERY

### Peripheral nerve decompression offers new hope

- 1 This exploratory study aimed to determine whether decompression of the four medial ankle tunnels could improve foot sensibility, increase balance and proprioception and decrease falls in people with impaired lower extremity sensation. Fourteen people with peripheral neuropathy participated in the study.
- 2 Neuropathy was the consequence of diabetes in 72% of people, a combination of diabetes and hypothyroidism in 7%, and chemotherapy in 7%. In 14% of cases neuropathy was idiopathic.
- 3 Participants were evaluated preoperatively and postoperatively to assess their ability to stand still

maintaining their balance with their eyes open and closed (sway), as well as their lower extremity sensibility.

- 4 Six participants had bilateral lower extremity peripheral nerve decompression; eight participants had unilateral peripheral nerve decompression.
- 5 Mean heel and toe sensibilities improved by 7% and 9% in the unilateral group, respectively, and by 32% and 42% in the bilateral group, respectively.
- 6 In the unilateral group, preoperative and postoperative sway comparison showed a reduction with eyes open and closed by 5% and 31%, respectively, and by 23% and 145% in the bilateral group, respectively.
- 7 The authors conclude that bilateral lower extremity peripheral nerve decompression may help improve pedal sensibility and balance in people with peripheral neuropathy.

Ducic I, Taylor NS, Dellon AL (2006) Relationship between peripheral nerve decompression and gain of pedal sensibility and balance in patients with peripheral neuropathy. *Annals of Plastic Surgery* **56**(2): 145-50

**‘The benefits of 6.5 years of intensive diabetes treatment on neuropathy status lasted for at least 8 years after the conclusion of the Diabetes Control and Complications Trial.’**

**‘Bilateral lower extremity peripheral nerve decompression may help improve pedal sensibility and balance in people with peripheral neuropathy.’**