Spooky

Matthew Young
Consultant Physician, Edinburgh Royal Infirmary, Edinburgh

In the last edition of *Diabetes Digest* (Young, 2013), I commented that I wanted to see similar studies to those of Routolo et al (2013) and Chantelau and Richter (2013), which investigated early interventions to minimise deformity in Charcot feet, being replicated. Remarkably, I did not have long to wait.

Parisi et al (their article summarised on the next page), however, took a different route. All of the participants had some X-ray change caused by Charcot neuroarthropathy in the early Eichenholtz stages I and II, and, rather than immobilise their patients in casts, Parisi et al opted for a walker boot and early weight bearing. This radical approach appears to have been successful, with only minor worsening of the radiographic findings and resolution of the clinical Charcot score, and without the issues of patient compliance and cast injuries that can plague the conventional total contact cast (TCC) route.

Some of the negatives of this particular study, such as a non-statistically significant worsening of the tarso-first metatarsal angle, might be explained by the size of the study (22 participants), but I would agree with the final conclusion of this paper that this "may therefore be a safe treatment option". The lack of ulceration and infection is encouraging and, at least for those individuals for whom a TCC is not possible or desirable, may give clinicians an option for a less restrictive treatment.

Another article examining the possible early interventions to reduce reulceration is from the Amsterdam group of Bus et al (summarised alongside). They continue to publish excellent work on the utility of footwear and orthoses in the management of individuals with diabetic foot ulcers. Their latest research helps to explain why studies looking at shoes and insoles in some studies report significant reductions in recurrent ulceration, but real world case series continue to show high levels of recurrent ulceration despite patients being given shoes and preventative care. As their previous paper on shoe adherence, indoors and out, suggested, the provision of shoes alone will do little to improve outcomes for individuals with diabetes (Waaijman et al, 2013).

Even if the shoes are heavily customised, they will not prevent ulceration. Shoes, whether modified or not, will only reduce ulceration when they are worn. This is not a new message but it makes me think, perhaps we should take more notice of patient preferences when supplying shoes, which might be to make a bit of compromise on absolute off-loading efficacy in order to ensure that they are worn more of the time (or at all). ■

Chantelau EA and 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

Ruotolo V, Di Pietro B, Giurato L et al (2013) A new natural history of Charcot foot. *Clin Nucl Med* **38**: 506–9

Waaijman R, Keukenkamp R, de Haart M et al (2013) Adherence to wearing prescription custom-made footwear in patients with diabetes at high risk for plantar foot ulceration. *Diabetes Care* **36**: 1613–8

Young M (2013) If every Charcot looked the same. *Diabetes Digest* **12**: 184–5

Diabetes Care

Pressure-improving custom-made footwear

Readability	✓✓✓✓
Applicability to practice	✓✓✓
WOW! Factor	✓✓✓✓

1 Pressure-improved custom-made footwear and standard non-improved custom-made footwear were compared to each other for their effectiveness against plantar foot ulcer recurrence.

2 Individuals with diabetes and neuropathy were randomly assigned to either shoe type and were blinded throughout (n=171). Inclusion criteria included a recently healed foot ulcer in the 18 months prior to randomisation.

3 By the 18-month follow-up after randomisation, shoe peak pressures were significantly lower in the pressure-improved custom-made footwear group.

4 Also, 42% of all the participants had had a recurrent foot ulcer: 38.8% in the improved group and 44.2% in the standard care group. This was not a significant difference (relative risk reduction 11%; odds ratio [OR]=0.80; 95% confidence interval [CI] 0.44–1.47; P=0.48).

5 Only 46% of the total number of participants adhered to wearing their custom-made footwear. In those that adhered to wearing the pressure-improved custom-made footwear, there was a significantly reduced risk of recurrent plantar foot ulcers compared to the standard custom-made shoe (P=0.045).

6 The authors advise more must be done to encourage individuals to wear the custom-made footwear, otherwise the significant benefit of wearing the pressure-improved custom-made shoe is lost.

Bus SA, Waaijman R, Arts M et al (2013) Effect of custom-made footwear on foot ulcer recurrence in diabetes: a multicenter randomized controlled trial. *Diabetes Care* **36**: 4109–16

Diabetes Res Clin Pract

Protocols for PAD diagnosis

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓

1 Ankle brachial pressure indices (ABPI) measurements are used to diagnose peripheral arterial disease (PAD); however, reports suggest there may be errors in its reliability for people with T2D and end-stage renal failure because of artificially raised occlusion pressures.

2 The authors compared ABPI measurements with continuous wave Doppler measurements in order to screen for PAD in 49 individuals with T2D.

3 Using the ABPI protocol, 36.7% and 32.6% of participants were classified with a normal vascular status in the right and left foot respectively, when, in fact, all had abnormal waveforms in both feet, which is indicative of PAD.

4 This study highlights the limits of using only ABPI to diagnose PAD, as the protocol is likely to yield high false negative results.

5 The authors suggest using both ABPI and Doppler waveform measurements to screen for PAD in people with diabetes.

Formosa C, Cassar K, Gatt A et al (2013) Hidden dangers revealed by misdiagnosed peripheral arterial disease using ABPI measurement. *Diabetes Res Clin Pract* **102**: 112–6

Foot Ankle Int

Effectiveness of percutaneous tenotomy for diabetic toe ulcers

Readability	✓✓✓✓
Applicability to practice	✓✓✓
WOW! Factor	✓✓✓

1 The authors evaluated the effectiveness of percutaneous flexor and/or extensor tenotomy procedures for the treatment of diabetic, neuropathic toe ulcers.

2 The medical files of 83 individuals were reviewed and, in total, percutaneous tenotomy procedures were carried out for 103 tip-of-toe ulcers; 26 cock-up/dorsal ulcers; 21 kissing ulcers; and 10 plantar metatarsal ulcers.

3 A successful response to the procedure was a healing response at week 1 and wound closure at week 4 post-procedure.

4 Percutaneous tenotomy procedures were successful for the treatment of tip-of-toe ulcers, kissing ulcers and cock-up ulcers ($P<0.01$). However, they were not successful for the treatment of plantar metatarsal ulcers.

Tamir E, Vigler M, Avisar E, Finestone AS (2014) Percutaneous tenotomy for the treatment of diabetic toe ulcers. *Foot Ankle Int* **35**: 38–43

Diabet Foot Ankle

A 50% loss of non-operative podiatrists at a UK foot clinic

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓

1 For 7 months during 2010, a diabetic foot clinic in Norfolk and Norwich University Hospitals NHS Trust had a 50% reduction in the number of non-operative podiatrists due to unforseen circumstances. Non-specialist podiatrists from the community foot protection team were hired in the interim.

2 The authors assessed the economic impact of this event by comparing the 7-month period to the previous 5 years and 2 years after.

3 The loss of specialist podiatrists led to more hospital admissions, longer lengths of stay for individuals and an increased cost of £90 000, which is believed to be underestimated.

4 The number of follow-ups for patients decreased as "simple" cases were discharged earlier than they would be have usually been.

5 This highlights the indispensable role of the specialist podiatrist.

Gooday C, Murchison R, Dhatariya K (2013) An analysis of clinical activity, admission rates, length of hospital stay, and economic impact after a temporary loss of 50% of the non-operative podiatrists from a tertiary specialist foot clinic in the United Kingdom. *Diabet Foot Ankle* **4**

Diabet Foot Ankle

Charcot treatment: Walker boot and weight bearing

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓

1 The authors of this study treated people with Charcot neuroarthropathy in the early Eichenholtz stages I and II with a walker boot and immediate weight bearing rather than the standard care of a total contact cast and complete offloading.

2 Twenty-two adults with T2D participated and underwent thorough clinical examinations every 15 days for 12 weeks after diagnosis. They then received a walker boot and were examined once a month.

3 The walker boot was discontinued when individuals had no pain or oedema; when the temperature difference between the lower extremities was less than 2ºC; and when there was a decrease in sclerosis after X-ray. Mean time of treatment was 18 weeks.

4 After treatment, no ulcerations or infections were observed, and there was a significant improvement in the American Orthopedic Foot and Ankle Society Ankle-Hindfoot Scale (AOFAS).

5 The mean measured talar-first metatarsal angle at the beginning and end of the study did not present a statistically significant difference, although it did show a relative increase.

Parisi MCP, Godoy-Santos LA, Ortiz RT et al (2013) Radiographic and functional results in the treatment of early stages of Charcot neuroarthropathy with a walker boot and immediate weight bearing. *Diabet Foot Ankle* **4**

> *"The authors suggest using ankle brachial pressure indices and Doppler waveform measurements to most efficiently screen for peripheral arterial disease in people with diabetes."*