Lower limb complications

Money (and the cast) is too tight to mention

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While the UK is regarded as remarkable for achieving an equitable healthcare system for a low amount of GDP, we still do not know how much each item of care costs. In Sweden, epidemiological studies are easily performed as the social security number tracks all episodes where individuals contact healthcare services. In the United States, costs are calculated for reimbursement, making them accurate, if often a little inflated due to US practices.

In their paper, Stockl et al (see right) describe ulcer-related costs in California. The findings are not surprising but do provide some useful data. Costs increased with the severity of the ulceration as assessed by Wagner grade and in ulcers that deteriorated. Inpatient costs accounted for around 77% of total costs. This is in keeping with previous studies and indicates that co-ordinated secondary care foot clinics that are associated with improving outcomes and lower rates of admission are an effective and cost efficient way of reducing the financial burden of foot ulceration due to diabetes.

Another American passion in diabetic foot care is the total contact cast. In the paper summarised below, Wukich and Motko describe their experience of 62 casts for 18 ulcers in 13 patients. Fifteen of the 18 ulcers healed. In only one of the 13 patients in this study did an overtight cast cause a cast ulcer. However, many units never use them despite similar studies that suggest that they are the most effective way of healing neuropathic plantar ulcers. The evidence is growing that total contact casts should be used more widely, particularly for ulcers that fail to heal with conventional therapies.

FOOT & ANKLE INTERNATIONAL

Use technique to avoid complications of TCC

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

1 The objective of this prospective study was to investigate the frequency of complications during the treatment of neuropathic ulcers with total contact casting (TCC).

2 A total of 13 people with 18 neuropathic ulcers were treated with TCC – the same orthopaedic surgeon applied a series of 82 total contact casts.

3 The initial cast was changed in three to four days and subsequent casts were changed weekly.

4 During the castings, a total of 14 complications took place, but none required alteration in the treatment protocol.

5 Of the 14 complications, 13 involved skin irritation and the other was due to a cast that became too tight.

6 Out of the 18 neuropathic ulcers, 15 healed with TCC.

7 Although TCC can be used safely in high-risk patients who have neuropathic problems, minor complications ought to be anticipated.

8 Careful technique, close follow-up and patient education can minimise major complications that interfere with the treatment of plantar ulcers.

Wukich DK, Motko J (2004) Safety of total contact casting in high-risk patients with neuropathic foot ulcers. Foot & Ankle International **25**: 556–60

DIABETES CARE

A financial need for intensive outpatient interventions

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

1 This study aimed to characterise the costs of healthcare associated with diabetic lower-extremity ulcers.

2 Claims data were used to classify adults with diabetes who had a lower-extremity ulcer episode in 2000 and 2001.

3 Ulcer-related healthcare costs were computed for each episode and episodes were stratified according to severity level based on the Wagner classification.

4 The mean age of the 2253 people identified was 68.9 years and 59 % were male.

5 Total ulcer-related costs averaged at $13 179 (~ £6700) an episode and increased with severity level from $1892 (~ £1000, level 1) to $27 721 (~ £14 710, level 4/5).

6 Hospital charges of inpatients accounted for 77 % of overall cost.

7 Total ulcer-related costs were significantly higher for people < 65 years of age compared with those of older people, and for people with inadequate vascular status compared with those with adequate vascular status.

8 People who progressed to a higher level of severity had significantly higher ulcer-related costs compared with those who did not progress.

9 The value of intensive outpatient interventions designed to prevent the progression of ulcers is emphasised by the high costs of treating diabetic lower-extremity ulcers.

Stockl K, Vanderplas A, Tafesse E, Chang E (2004) Costs of lower-extremity ulcers among patients with diabetes. Diabetes Care **27**: 2129–34

'The self-monitoring of foot temperatures at home may be an effective adjunctive tool to prevent foot complications.'

DIABETES CARE

Sub-MTH fat-pads thin in diabetes and toe deformity

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

1 The objective of this study was to quantify the association between claw/hammer toe deformity and changes in sub-metatarsal head (sub-MTH) fat-pad geometry in diabetic neuropathic feet.

2 The researchers measured toe angle, sub-MTH fat-pad thickness and sub-phalangeal fat-pad thickness in 13 people with diabetes and toe deformity, 13 people with diabetes and neuropathy and 13 healthy controls.

3 Sub-MTH fat-pads were thinner and sub-phalangeal fat-pads thicker in the group with deformity compared with the neuropathic control group; thickness ratio was smaller in the deformity group.

4 A significant correlation between toe angle and thickness ratio was present.

5 The study indicated a distal displacement and subsequent thinning of the sub-MTH fat-pads in diabetes, neuropathy and toe deformity.

Bus SA, Maas M, Cavanagh PR, Michels RPJ, Levi M (2004) Plantar fat-pad displacement in neuropathic diabetic patients with toe deformity. Diabetes Care **27**: 2376–81

DIABETES CARE

Self-monitoring of foot temperatures

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

1 The effectiveness of at-home infrared temperature monitoring as a preventative tool in people at high risk of diabetes-related lower-extremity ulceration and amputation was evaluated.

2 People in diabetic foot risk category 2 or 3 were randomised into standard therapy (n=41) or an enhanced therapy group (n=44).

3 Standard therapy (therapeutic footwear, education and regular foot evaluation by a podiatrist) had more foot complications than the enhanced therapy group (who had the addition of a handheld infrared skin thermometer to measure temperatures on the sole of the foot in the morning and evening – if temperatures were elevated, activity was reduced and the patient contacted the study nurse.).

4 Self-monitoring of foot temperatures at home may be an effective adjunctive tool to prevent foot complications.

Lavery LA, Higgins KR, Lanctot DR et al (2004) Home monitoring of foot skin temperatures to prevent ulceration. Diabetes Care **27**: 2642–47

DIABETIC MEDICINE

No difference between Charcot and control group

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

1 The purpose of this study was to determine the mortality of a population of people diagnosed with Charcot neuropathic osteoarthropathy managed by a single specialist unit, and to compare the results with a control population.

2 Since 1982, all cases of Charcot foot have been retrospectively analysed at the City Hospital, Nottingham.

3 Incidence of amputation and survival was compared with a control population who were referred with uncomplicated neuropathic ulceration.

4 A total of 47 cases of Charcot foot were identified (26 male and 21 female) of whom 18 had type 1 diabetes.

5 Mean age and disease duration at presentation were 59.2 ± 13.4 (SD) and 16.2 ± 11.2 years, compared with 59.7 ± 12.6 and 16.3 ± 11.2 years, respectively, in the controls.

6 Of the people with Charcot, 21 had died after a mean interval of 3.7 ± 2.8 years, compared with 16 after a mean of 3.1 ± 2.7 years in the control group.

7 The mean duration of follow-up in the survivors was 4.7 ± 4.9 years in the Charcot group, and 5.3 ± 3.9 years in the control group.

8 The level of mortality in the group of people with Charcot foot was higher than expected, but there was no difference between those with Charcot and those with uncomplicated neuropathic ulceration.

Gazis A, Pound N, Macfarlane R, Treece K, Game F, Jeffcoate W (2004) Mortality in patients with diabetic neuropathic osteoarthropathy (Charcot foot). Diabetic Medicine **21**: 1243–46

DIABETIC MEDICINE

S(AD) SAD system is a valid tool

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

1 The aim of this study was to validate the S(AD) SAD system of grading ulcer features through use of simple clinical methods (Size [Area, Depth], Sepsis, Arteriopathy, Denervation).

2 A total of 300 people with ulcers who were referred to a hospital-based multidisciplinary clinic were classified during their first assessment.

4 Ulcers healed in 209 of the 300 patients; 30 were resolved through amputation, 32 by death and 29 persisted unhealed.

5 Significant differences were found in outcome according to area, depth, sepsis and arteriopathy, but not to denervation, and the strengths of the associations was confirmed using statistical analysis.

6 Features of individual ulcers can be categorised using simple clinical methods; depth, area and arteriopathy contribute independently to a model to predict outcome.

Treece KA, Macfarlane RM, Pound N, Game FL, Jeffcoate WJ (2004) Validation of a system of foot ulcer classification in diabetes mellitus. Diabetic Medicine **21**: 987–91

'Features of individual ulcers can be categorised using simple clinical methods.'