Tools for managing ulceration and amputation prevention: A multidisciplinary approach

This report is from the 4th Foot in Diabetes UK (FDUK) Masterclass on the Diabetic Foot held on 4 December 2008 at the Lancashire County Cricket Club, Manchester.

Introduction

Louise Stuart MBE (Consultant Podiatrist, NHS Manchester) and Lee Hawksworth (Podiatrist and Planning and Commissioning Manager, Tameside and Glossop PCT) co-chaired the 4th FDUK Masterclass on the Diabetic Foot. Opening the proceedings, Louise said that the aim of the masterclass was to "skill up" the attendees by looking at a range of multidisciplinary tools for managing ulceration, and ultimately preventing amputation, among those with diabetes. Speakers addressed the attendees on a spectrum of topics, from the psychology of patient motivation, though to on-the-ground tools for clinicians. This is a report from the masterclass.

The role of the multidisciplinary team in the treatment of diabetic foot disease is now well established (McInnes et al, 1998). This masterclass brought together a range of healthcare professionals to share their expertise with the attendees.

Session 1

During the first session, attendees were addressed by Umberto Saoncella, a patient advocate currently being treated for diabetic foot disease. Umberto described the huge impact that diabetic foot disease has on a person's lifestyle. He suggested that people dealing with diabetic foot disease need support and clear explanations of the treatment that is being undertaken, and its possible outcomes, from their healthcare professionals. Further, Umberto felt that he had won the "postcode lottery" by being treated in Greater Manchester, and he worried that people in the same situation as himself, but living elsewhere in the UK, could not expect an equal level of care.

Next, Gerry Rayman (Consultant Physician, Ipswich) presented a practical guide to blood investigations in those with diabetic foot disease. Gerry stressed that all people with diabetic foot disease require a full clinical assessment, which includes blood tests, to investigate possible undiagnosed comorbidities that may be barriers to healing. Gerry asked attendees to remember that it is "not just the foot, but the whole patient that must be taken into consideration." Many of the usual markers of infection in blood tests can be misleading in people with diabetes, Gerry said. Neutrophil count will not always be raised in people with diabetes who have an infection, and even when it is, it may be falsely elevated due to ketoacidosis. Likewise, an elevated rate of erythrocyte sedimentation, usually indicative of acute and chronic inflammation, may be suggestive of microvascular complications rather than infection in people with diabetes.

> ***"Not just the foot, but the whole patient must be taken into consideration."***
>
> *Gerry Rayman*

Measurement of C-reactive protein and procalcitonin, both proteins produced by the liver and other tissue groups during acute inflammation, are the most useful tests to determine infection in people with diabetic foot disease – and are even more sensitive when used in combination with each other.

Paul Chadwick (Principal Podiatrist, Salford) and Chinari Subudhi (Consultant Microbiologist, Salford) spoke about the microbiology of the diabetic foot. Chinari began by noting that infection, ischaemia and neuropathy are the "tragic trilogy" that lead frequently to lower-limb amputation among people with diabetes. "Infection is too often," Chinari said, "the final pathway to amputation", but he assured the attendees that good infection management can improve outcomes. However, Chinari stressed the need to minimise polypharmacy and duration of antibiotic use.

Paul discussed how taking a good patient history before prescribing antibiotics allows clinicians to determine any comorbidities, resistance or intolerance (gastrointestinal side-effects being common), and to differentiate the types of allergy people report (rash versus anaphylaxis).

Session 2

Cliff Shearman (Professor of Vascular Surgery, Southampton) opened the second session with a discussion of the diabetic foot from the public health perspective.

Despite complications of the foot being widely acknowledged to be the most preventable diabetes complication (International Diabetes Federation, 2005), Cliff said that some services were currently failing to recognise the problem, and failing to perform optimally. Why, Cliff asked rhetorically, did the Quality and Outcomes Framework data for neighbouring and demographically similar providers indicate markedly different amputation rates? Cliff suggested that diabetes, peripheral arterial disease, cardiovascular risk and amputation were all being treated in isolation, resulting in poor service provision in many areas, and called for an integrated approach.

Frank Webb and Martin Fox next presented a practical guide to X-rays of the diabetic foot. They described the circumstances under which an X-ray should be ordered, and the type of information that the radiology department needs to be provided with upon referral (*Table 1*). Frank and Martin described their "ABCS" approach to looking at X-rays of the diabetic foot, suggesting that all of the following elements should be assessed: **A**lignment of bones, **B**one density, **C**artilage and joint space and **S**oft tissue.

Table 1. Information required by the radiology department on referral for X-ray of the diabetic foot.

- Relevant medical conditions of the person being X-rayed (in this case, diabetes).
- The presenting problem (foot ulcer, static, probes to bone, cellulitis).
- The rationale behind why you have ordered the X-ray (what do you suspect is there?).
- The views required (order a minimum of two views for the purpose of comparison).
- The exact anatomical location for X-ray (not "left foot").

To conclude the second session, Louise Stuart demonstrated the application of the "Manchester Martini Cast". Louise described how this light-weight, easy-to-apply cast can dramatically improve both healing and quality of life for those who require off-loading of their diabetic foot. Importantly, this cast can be applied in a variety of settings, making cast application as easy in the community setting as in a hospital.

Session 3

Session 3 began with Mark Davies (Clinical Psychologist, Belfast) speaking on how healthcare professionals can help achieve behavioural change among their patients, be it encouraging lifestyle change or medication regimen adherence.

Mark expounded the motivational interviewing technique, a patient-centred way to facilitate behavioural change that is supported by a number of published trials (see Smith et al, 1997; Harland et al, 1999). The emphasis of motivational interviewing is not on traditional "advice giving", Mark said, but rather on the healthcare professional becoming an active collaborator in the process of change.

As the final speaker of the day, William Jeffcoate (Consultant Physician, Nottingham) discussed the management of diabetic foot disease in the hospital setting. William described the gap between the level of care that people admitted to hospital for diabetic foot disease would like to receive, and the level of care that they are likely to get. William held that the level of care in the NHS hospital system will only improve if diabetic foot disease is a defined target for both management and commissioning.

The pathway of care for those admitted with diabetic foot disease suggested by William and his colleagues is three-fold: (i) immediate care upon admission, (ii) details of infection, critical ischaemia and off-loading ascertained with the early involvement of a specialist team (4–48 hours post-admission), and (iii) continuing specialist care (rehabilitation, diabetes care, cardiovascular risk reduction and prevention and management of new diabetic foot disease). William also stressed that an ongoing auditing process must be a mandatory part of inpatient management, measuring performance and revealing inequalities between services. In this way, William hopes that the UK will ultimately be a world leader in inpatient diabetic foot care.

Feedback from the 4th FDUK Masterclass was very positive, and the committee is already planning the 2009 event (see below). ■

Harland et al (1999) *British Medical Journal* **319**: 828–31

International Diabetes Federation (2005) *The diabetic foot: Amputations are preventable.* IDF, Brussels

McInnes A et al (1998) *The Diabetic Foot* **1**: 109–15

Smith at al (1997) *Diabetes Care* **20**: 53–4

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