Diabetic foot care in the secondary care setting

Jane McAleese

Article points

1. The role of the DSN in the diabetic foot clinic is to provide education and support.
2. Communication between the many specialities involved in foot ulceration can be disjointed.
3. A closer relationship between the wider multidisciplinary team is needed to enhance understanding and education between healthcare professionals, which, the author believes, could be partially achieved by working in each other's clinics.

Key words

- The diabetic foot
- Psychosocial factors
- Psychological care

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Diabetic foot ulcers are defined as 'major erosions of the epithelium that extend into the dermis and deeper tissues and are associated with reduced healing capacity' (Kinmond et al, 2003). Diabetic foot ulceration is largely avoidable if good metabolic control and foot care can be maintained (Valk et al, 2005). However, this requires education accompanied by lifestyle changes as early as possible before further metabolic damage occurs. In the author's opinion, for many people with diabetes, healthcare professionals underestimate the demands the condition places upon them. Effective self-care impacts upon every aspect of a person's day, even before one considers the normal stresses of home, work and relationships. This article discusses some psychosocial aspects of diabetic foot ulceration and what the secondary care-based diabetes specialist nurse can do to help alleviate them.

Metabolic dysfunction of diabetes predisposes those with the condition to substantial vascular risk and neuropathy. As observed by the multidisciplinary team at the author's diabetic foot clinic, approximately half the people being seen have neuro-ischaemic disease and half have neuropathy. Peripheral vascular disease, hypertension, dyslipidaemia and hyperglycaemia all contribute to the development of the at-risk foot (Edmonds and Foster, 2000); although, often, the final major precipitating factor for ulceration is pressure from poorly fitting footwear. Deformities such as hammer toe, bunions, claw toes and Charcot make normal footwear almost impossible for people to wear without causing further injury. (*Box 1* illustrates some 'foot facts'.)

The metabolic damage associated with diabetes impacts on every aspect of tissue function from the oxygen and nutrient carrying capacity of red blood cells to the production of healthy collagen and skin elasticity (Andersen et al, 2004). Leukocytes, which are essential in fighting and preventing infection, are dysfunctional in the presence of hyperglycaemia (Andersen et al, 2004). The patient's intrinsic healing factors are compromised and when ulceration does occur the healing process is slow (Enoch and Price, 2004). Delayed healing encourages infection, which can cause serious tissue or bone damage that can lead to gangrene and amputation (Edmonds and Foster, 2000).

Good metabolic control and foot care are essential in preventing foot problems (Barth et al, 1991). Therefore, at the author's diabetic foot clinic people newly diagnosed with diabetes are provided with education regarding current and future health risks and the lifestyle changes needed to minimise these risks, including foot care. The education is provided either in groups, individually, or as inpatients. The topics covered are reinforced during individuals' annual diabetes review, at nurse-led clinics and by the specialist podiatrists who offer ongoing education either in the diabetes clinic, on the wards or in the community.

Some people are unable to self-care due to, for example, visual impairment, obesity or immobility; this population may be cared for by their families or carers – their diabetes control is variable according to their lifestyle and domestic circumstances. Many of the people attending at the author's diabetes clinic are able to incorporate education into their lives to manage their diabetes; others find diabetes stressful and intrusive. Despite the fact that people with diabetes tend to exaggerate their risk of diabetes complications (Meltzer and Egleston, 2000), there is still a high incidence of poor concordance to medication and insulin regimens (Chapman et al, 2005).

In the author's experience, reduced psychological wellbeing and diabetes 'burnout' (that is, when people begin feeling overwhelmed and frustrated by the demands of diabetes) results in self-neglect and increases the risk of developing more serious complications. Depression is doubled in people with diabetes and may even contribute to the development of diabetes (Lustman et al, 2005; Dittmann, 2005). It directly impacts on HbA_{1c} and metabolic control (Lustman et al, 2000). Diabetes complications can lead to even greater depression which impacts further upon a person's physical, psychological and social functioning (Polonsky, 2000).

Despite many people experiencing major long-term psychological and social difficulties, psychological support in the UK is only available for those whose problems appear severe (Hixenbaugh and Warren, 1996). The hospital where the author works is responsible for approximately 10 000 people with diabetes yet the diabetes centre has the support of only one nurse practitioner in psychotherapy.

Psychosocial impact of diabetic foot ulceration

In a study by Kinmond and colleagues (2003) people's own narratives reflected a different perspective of diabetic foot ulceration than that of healthcare professionals. The authors of the study suggest that more concern for the individual's perspective would enhance the healthcare professional's understanding of people's experiences of living with diabetic foot ulceration.

There is a common theme of loss among people with diabetic foot problems, especially that of mobility and freedom (Kinmond et al, 2003). Household responsibilities are often suspended, and social and family activities are also often restricted (Kinmond et al, 2003). An individual's sense of who he or she is

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Box 1. Foot facts.

Approximately 15 % of people with diabetes will develop at least one foot ulcer in their lifetime; 15–20 % of these will require a lower limb amputation (McIntosh et al, 2003).

Diabetes is the second most common cause of lower limb amputation (Department of Health, 2001) leading to loss of a lower limb every 30 seconds (International Diabetes Federation, 2005).

Despite an increase in revascularisation procedures and the development of multidisciplinary foot clinics, there is a 50 % re-amputation rate among people with diabetes (van Houtum et al, 2001) with a 5-year mortality rate of 39–80 % (Reiber, 2001).

Ulceration recurrence rates increase from 35–40 % after 3 years to 70 % after 5 years (NHS Centre for Reviews and Dissemination, 1999).

The estimated cost of diabetes-related amputation is between £20 000 and £45 000 (Lefebvre, 2005), while the psychological distress is immeasurable.

Page points

1. Social isolation can be depressing for partners of people with diabetic feet as well.
2. The role of the DSN within the foot clinic is to provide education and support.
3. In order to provide a good diabetic foot service, the DSN should be aware of a number of pieces of information with regards to the patient.
4. The significance of past and current HbA_{1c} level needs to be discussed with the individual and its importance in wound healing emphasised.
5. In the author's clinic people with diabetes are taught to recognise a number of symptoms of infection.

within familial and social circles becomes threatened. Being housebound can cause social isolation, as can periods of enforced unemployment. The social links with work become meaningless; loss of financial status impacts upon family relationships; and lack of income further reduces the opportunity for social interaction (Kinmond et al, 2003).

Listening to people with diabetic foot ulcers and their families, the author has observed that social isolation can be depressing for partners as well as for the individual with the ulcer: their role may change from that of partner to that of main financial provider and/or nurse. There is evidence to suggest that people will actively ignore good clinical advice if it appears to reduce their perceived quality of life (Rodin, 1990).

Living with diabetic foot ulceration can alter self-image and affect social confidence (Kinmond et al, 2003). For example, not only are people, for example, less able to shower or bathe regularly but they may also find themselves restricted to wearing aircast boots or orthotic devices for long periods of time. It is not uncommon for a woman to return to the foot clinic with deterioration of her foot ulceration following a special occasion when she wore her favourite shoes for a few hours rather than her prescribed footwear.

The role of the DSN in the foot clinic

The role of the DSN within the foot clinic is to provide education and support. In order to provide a good diabetic foot service, the DSN should be aware of the following information with regards to the patient:

- current level of knowledge
- ability to self-care
- lifestyle that the individual lives
- employment status
- family and domestic circumstances
- duration of diabetes
- history of metabolic control.

The significance of past and current HbA_{1c} level needs to be discussed with the individual and its importance in wound healing emphasised. The patient's (or relative's) ability to monitor blood sugar levels at home should also by explored by the DSN. A blood glucose testing meter and a diary to record blood glucose test results, a contact name and telephone number should also be provided as necessary. The frequency with which the individual should be self-monitoring and blood glucose targets should be negotiated. Adherence to prescribed medications is reviewed in the author's clinic and if needed once-daily medications are prescribed. If insulin therapy is needed, relevant education will be given. The times at which to monitor capillary blood glucose according to the insulin regimen will be agreed and follow-up clarified.

Issues relating to hypoglycaemia should be explored and if necessary the dietitian-on-call should provide education or the DSN supplies relevant literature.

In the author's clinic, people with diabetes are taught to recognise symptoms of infection such as:

- redness
- warmth
- swelling
- increased exudate
- enlargement of existing ulcer
- pyrexia
- general malaise
- unusual pain
- offensive smell
- unexplained elevation of blood glucose.

Contact names and numbers are provided so that if the individual notices any of the changes mentioned above he or she can report them promptly. The person with the diabetic foot ulcer or a family member may be taught how to redress the ulcer – if they are not thought responsible enough to do so then district nurse support is arranged. They are shown how to apply their temporary footwear, insole or aircast boot, ensuring that they are not causing any further damage. Follow-up support is agreed before the inidvidual leaves the clinic.

Primary and secondary care management issues

Over the last 3 years in the author's locality, podiatry patients in the community have been re-prioritised according to individual need. Those at high risk are seen sooner, vascular referrals are made more quickly and there are earlier screening and treatment interventions. The successful liaising between local nursing services and podiatry services appears to depend upon personal dedication, working relationships and networking rather than any defined protocol. For example, the district nurses are able to contact the lead community podiatrist out of hours for advice and to arrange urgent referrals to the acute hospital.

At present, the author's diabetic foot clinic tends to look after most of the people with diabetic foot ulcers itself until their ulcers have healed – a process which can take months. In the author's opinion, the ideal set-up would be to retain the individual until his or her condition has stabilised and then a management plan that can be implemented in primary care with district nurse and podiatric support should be developed. As a result, our patients would need to attend the foot clinic less frequently and this would free up appointments for other, more urgent, foot complications. Some patients already receive shared care, and it is planned that many more will be managed in this way in the future. With less pressure on the foot clinic, appointment slots would become available for emergency referrals. People could be treated within the foot clinic and this would avoid them having to attending the accident and emergency department, usually out of hours, with deteriorating foot ulceration.

Within the author's hospital, there is a recognised problem for people arriving in accident and emergency with, for example, an infected neuropathic or ischaemic foot. They may be seen by the specialist registrar for medicine who may not have a special interest in diabetes and they could be sent home with inappropriate antibiotics or dressings. To help overcome this problem, a diabetes foot protocol is being designed with the input of a microbiologist, the diabetes team and accident and emergency doctors to offer clear referral and admissions guidelines; these will be presented to all medical teams treating people with diabetes throughout the hospital.

At present, the author and her colleagues are restructuring the diabetes education that they provide to meet the National Institute for Health and Clinical Excellence guidelines. Locally, standard 3 of the National Service Framework for diabetes (Department of Health, 2001) will be met by introducing the X-PERT training programme for people with type 2 diabetes in primary and secondary care, thereby providing people with diabetes with structured education to give them the necessary tools to self-manage their diabetes effectively.

Communication between the many specialities involved in foot ulceration can be disjointed (Jeffcoate and Harding, 2003). A closer relationship between the wider multidisciplinary team is needed to enhance understanding and education between healthcare professionals, which, the author believes, could be partially achieved by working in each other's clinics. Communication through forums where members of the different teams in primary and secondary care could meet at agreed intervals would not only provide personal links for future networking but also a valuable arena for exploration of follow-up issues, any problems, new ideas and solutions to old problems.

Conclusion

Unless greater political and public awareness of diabetes health issues causes cultural and behavioural changes in our society, we face an ever-increasing challenge to meet the needs of people with diabetes. The author and her colleagues are currently making changes to their education and foot services, but it will take time to assess their impact. The ongoing development of these services will depend largely upon the co-operation and communication of the whole multidisciplinary team to provide seamless integrated care. ■

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