Global Guideline

for Type 2 Diabetes

Chapter 15: Foot care

International Diabetes Federation

Foot care

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Recommendations

■ Standard care

FT1 Assess feet of people with diabetes as part of an annual review:

1. history of previous foot ulceration or amputation, symptoms of peripheral arterial disease, physical or visual difficulty in self-foot-care
2. foot deformity (hammer or clawed toes, bone prominences) and footwear; visual evidence of neuropathy (dry skin, callus, dilated veins) or incipient ischaemia; nail deformity or damage
3. detection of neuropathy by 10-g monofilament (or 128-Hz tuning fork); a biothesiometer is an option for quantitative assessment (cut-off point for ulcer risk >25 volts); non-traumatic pin-prick
4. palpation of foot pulses (dorsalis pedis and posterior tibial) and capillary return time; Doppler ankle:brachial pressure ratio (<0.9 for occlusive vascular disease) may be used where pulses are diminished to quantify the abnormality.

FT2 Discuss the reasons for foot review with each person with diabetes as part of the foot-care educational process.

FT3 Agree a foot-care plan based on the findings of annual foot review with each person with diabetes.

Assess and provide necessary foot-care education according to individual need and risks of ulcer and amputation.

FT4 Classify according to findings:

No added risk: if no loss of sensation, no signs of peripheral arterial disease, and no other risk factor.

At risk: if neuropathy or other single risk factor.

High risk:

- diminished sensation plus foot deformities or evidence of peripheral arterial disease
- previous ulceration or amputation (very high risk).

Foot ulceration or infection: foot ulcer present.

FT5 Manage according to classification level:

No added risk: agree a management plan including foot-care education with each person.

At risk: arrange regular review, approximately 6-monthly, by foot-care team. At each review:

1. inspect both feet – ensure provision of local management as indicated
2. evaluate footwear – provide appropriate advice
3. enhance foot-care education.

High risk: arrange frequent review every 3-6 months by foot-care team. At each review:

1. inspect both feet – ensure provision of local management as indicated
2. evaluate footwear – provide advice and specialist insoles and shoes if indicated
3. consider need for vascular assessment or referral
4. evaluate and ensure the appropriate provision of intensified foot-care education.

Foot ulceration or infection (including foot-care emergencies): refer to multidisciplinary foot-care team within 24 hours for:

1. appropriate wound management, dressings and debridement as indicated
2. consideration of systemic antibiotic therapy (often longer term) for cellulitis or bone infection as indicated; generic penicillins, macrolides, clindamycin, and/or metronidazole as indicated as first-line, with ciprofloxacin or co-amoxiclav as examples of second-line drugs
3. optimal pressure distribution (casting if indicated and not contra-indicated), investigation and treatment (referral) for vascular insufficiency
4. probing to bone, radiology and scans, MRI imaging, and biopsy where indicated for suspected osteomyelitis
5. optimal blood glucose control
6. specialist footwear and orthotic care (e.g. insoles), and individualized discussion of prevention of recurrence, when ulcer has healed.

FT6 Do not amputate unless:

1. a detailed vascular evaluation has been performed by the vascular staff
2. ischaemic rest pain cannot be managed by analgesia or revascularization
3. a life-threatening foot infection cannot be treated by other measures
4. a non-healing ulcer is accompanied by a higher burden of disease than would result from amputation.

A specialist foot-care team will include doctors with a special interest in diabetes foot care, people with educational skills, and people with formal training in foot care (usually podiatrists or trained nurses).

Comprehensive care

FT_C1 In general this will be as *Standard care*, but the multidisciplinary foot-care team can be enhanced by on-site inclusion of vascular surgeons, orthopaedic surgeons, orthotists, social workers, and psychologists.

FT_C2 Foot pressure distribution measurements might be made. Sophisticated vascular scanning and angiography could be available to the foot-care team.

Minimal care

FT_M1 Sensory assessment would be by 10-g monofilament or tuning fork, with or without non-traumatic disposable pin-prick only.

FT_M2 Antibiotic therapy would be with generic penicillins, macrolides, and/or metronidazole, intravenously for deep tissue infections, and adjusted by response or culture results.

FT_M3 Vascular assessment would be by peripheral pulses and capillary return times only.

FT_M4 Vascular referral would be according to findings and local revascularization facilities.

Rationale

Foot ulceration and limb amputation are among the major drivers of impaired health and of health-care costs in diabetes care. While primary prevention of the underlying damage to nerves and vessels is addressed elsewhere in this guideline, secondary intervention in those developing such risk factors can reduce this burden and cost on both the person with diabetes and society.

Evidence-base

Because of the potential for improvement of health and reduction of health-care costs, the evidence surrounding diabetes foot-care has been extensively and formally reviewed many times in recent years [1-10].

The output from these documents is very consistent in suggesting that formal regular review to detect people at risk, more regular review of those found to be at risk, and intensive management of those developing foot ulceration and infection can produce major returns in avoiding the health and monetary costs of amputation. Providing foot-care education for all patients, with increased intensity for those at higher risk [11], and vascular interventions where critical ischaemia is identified (or is contributing to ulceration), are also common recommendations arising from the evidence-base.

Consideration

There is little controversy over the system and needs of diabetes foot-care provision. Most of the recommendations of formal evidence-based guidelines can be implemented with little modification in situations where minimal health-care funding resources are available, as simply removing shoes and examining feet can usefully save people from becoming disabled and unproductive members of their communities.

Implementation

Appropriate protocols, structured records, and recall systems need to be supported by appropriate training for professionals providing screening and management services. In particular the training and provision of non-medically qualified foot-care assistants (podiatrists or people fulfilling that role) need to be assured. Liaison needs to be established with orthotists and footwear suppliers, and cast

technicians. Facilities for vascular scanning and vascular interventions will be by agreement with vascular surgical staff. Policymakers should be approached to consider the socio-economic burden of diabetes foot problems and assure structural and financial support for preventative strategies.

Evaluation

Evaluation is by annual incidence of foot ulceration, foot hospitalization, foot ulceration healing rates within defined time-periods, and amputation rates at different levels of the limb.

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