Foot Screening in Diabetes

Disclaimer

Contents

Disclaimer ........................................................................................................................................ 1
Red Flags ..................................................................................................................................... 2
Background – About Foot Screening in Diabetes ......................................................................... 2
Assessment ................................................................................................................................... 2
Management ................................................................................................................................. 4
Referral .......................................................................................................................................... 5
Information .................................................................................................................................... 6
For health professionals .................................................................................................................. 6
For patients ..................................................................................................................................... 6
References ...................................................................................................................................... 6
Disclaimer ..................................................................................................................................... 6
Red Flags

- Suspected septicaemia, severe infection
- Critical limb ischaemia
- Ulcer depth to tendon or bone
- Acute Charcot’s foot

Background – About Foot Screening in Diabetes

- All patients with diabetes should undergo risk stratification to determine future:
  - Risk of foot complications.
  - Management needs, including frequency of foot screening.
- Risk stratification is based on presence of deformity, neuropathy, peripheral vascular disease and previous ulcer or amputation history.
- In up to 25% of people with diabetes, a minor injury will develop into an ulcer.
- Development of a diabetic foot ulcer increases the risk of amputation, so requires close monitoring and prompt referral for high risk foot assessment.
- Other high risk conditions include osteomyelitis, Charcot foot, and severe peripheral vascular disease (critical ischaemia).

Assessment

1. Ask about foot history:
   - Occupation, activities, visual impairment, physical disability
   - Footwear worn inside and outside.
   - Prior ulceration, foot surgery (including revascularisation procedures)
   - Current concerns, e.g. corns, blisters, ulcers, dry skin, fissures, problem nails, pain
   - Features of neuropathy e.g numbness, paraesthesia, dysesthesia.
   - Features of peripheral arterial disease e.g. claudication, rest pain, night pain
   - Changes in foot shape, symptoms of infection

2. Examine the foot:
   - Visual inspection
     Look for:
     - Current foot ulcers and/or infection.
     - Nail condition and any impingement on adjacent toes.
     - Interdigital problems e.g. maceration.
     - Skin changes e.g., dry fissured skin, skin atrophy, callus formation, skin colour, hair loss.
     - Structural changes e.g., high arch, clawed toes, bunions.
     Skin changes and structural foot changes are risk factors for ulceration.
   - General examination
     - Skin temperature – warm, normal, cold.
     - Pulses – present, bounding, absent.
     - Foot sensation using a 10 g monofilament
     - Tendon reflexes – ankle and if absent, check knee reflexes.
Remember features of neuropathic and ischaemic feet, both of which can be present.

**Features of a neuropathic foot**
- Loss of sensation, altered sensation
- Dry skin, fissures
- Ulcers often plantar, callus surrounding ulcer
- Patient may be unaware of any ulceration and continue to walk on it
- Most serious complication is a Charcot foot:
  - **Acute Charcot foot (neuropathic arthropathy)**
    - Progressive damage to bones, joints and soft tissues in the foot due to lack of sensation and repetitive injury.
    - Uncommon (occurs in 1 to 2% of patients with diabetes) and is often misdiagnosed.
    - Majority present with new pain or discomfort.
    - Usually foot pulses are present, with bounding pulses.
    - Distended dorsal veins.
    - Swelling maximum over bones involved but may extend up the foot or even leg.
    - Commonly mistaken for infection, gout, sprain, or deep vein thrombosis.
    - Delay in diagnosis and appropriate treatment can result in permanent disability.
    - Deformity is a late sign.
    - If midfoot is involved, foot develops "rocker bottom" appearance on the sole.
- **Features of an ischaemic foot**
  - Cool, with diminished or absent pulses.
  - Pink with atrophic skin.
  - May be painful.
  - Ulcers are usually on the edges of the feet with very little callus.
- Signs of critical ischaemia include pale and/or mottled feet, dependent rubor.

3. Always consider osteomyelitis with chronic infection and ulceration.

4. Determine risk level for appropriate management:
   - **High risk foot**
     - Patients with two or more of the following risk factors:
       - neuropathy
       - peripheral arterial disease
       - foot deformity
     - and/or previous history of foot ulcer/amputation.
   - **Intermediate risk foot**
     - Patients with one of the following risk factors:
       - neuropathy
       - peripheral arterial disease
       - foot deformity
     - and no previous history of foot ulcer or amputation.
   - **Low risk foot**
     - Patients with none of the following risk factors:
       - peripheral neuropathy
and no previous history of foot ulcer or amputation.

Management

1. If any red flags, refer for immediate diabetes assessment.
   **Red flags**
   - Suspected septicaemia, severe infection
   - Critical limb ischaemia
   - Ulcer depth to tendon or bone
   - Acute Charcot’s foot

2. Ensure glycaemic control is optimal to minimise risk of diabetic foot disease. If signs of foot disease are present, review.

3. Use foot checks to educate about foot care and provide patient information e.g. Passport to Foot Disease Prevention.

   **Foot care**
   Advise patient or carer to:
   - check feet daily for damage e.g. erythema, cracking, blisters, maceration, and seek medical advice if these develop.
   - clean daily with soap and warm water and dry feet well.
   - avoid extremes of temperature e.g. heat packs, hot pavements, cold exposure.
   - not attempt corn and callus removal themselves.
   - protect feet with well-fitting footwear both indoors and outdoors.

4. Ensure patients who are elderly, visually impaired, or have physical disabilities have help with regular foot care by referral to a podiatrist. Consider creating a GP Management Plan (GPMP) and Team Care Arrangement (TCA).

5. Manage according to risk level:
   - **Intermediate and high risk foot**
     Offer foot protection program including:
     - foot care education
     - podiatry review
     - appropriate footwear, both indoors and outdoors, such as supportive, well fitting, closed shoes
     - examine the foot every 3 to 6 months.

     For Charcot foot, refer urgently to multidisciplinary specialist service or hospital foot clinic to prevent further destruction of the foot.

   - **Low risk foot**
     - Provide foot care education.
     - Complete a foot check annually.
Ensure patients who are elderly, visually impaired, or have physical disabilities, have help with regular foot care. This may be from family members, carers, or podiatrist.

6. Treat painful diabetic neuropathy.
   - Exclude other causes of neuropathy (e.g. vitamin B12 deficiency) before starting treatment.
   - Approximately half of patients with peripheral neuropathy experience pain that is not severe enough to require treatment.
   - If mild pain, consider simple analgesia e.g. paracetamol.
   - If more severe pain, consider tricyclic antidepressants at low dose e.g.:
     - amitriptyline 25 mg at night titrated up to maximum 100 mg – beware of anticholinergic side-effects, especially urinary retention in males with large prostates, or
     - other antidepressants e.g. Duloxetine 30 mg at night titrated up to 60 mg according to response.
   - If failure to respond, consider:
     - Pregabalin 75 mg twice a day, slowly titrated up 300 mg twice a day according to response.
     - Gabapentin 100 to 300 mg orally daily, slowly titrated up to maximum of 2400 mg in three divided doses according to response. Dose adjustment needed in renal impairment.
   - If localised neuropathic pain, topical capsaicin 0.075% applied topically four times a day may be helpful.
   - Review control of diabetes as neuropathy pain often improves with improved diabetes control.

7. Perform a foot examination at least twice a year as per Diabetes Cycle of Care. Examine high risk feet every 3 to 6 months and opportunistically.

8. If Aboriginal or Torres Strait Islander patient with high-risk foot, consider referral to Integrated Team Care.

Referral

- If any red flags, refer for immediate diabetes assessment.
- If high risk condition e.g. diabetic foot ulcer or suspected Charcot's arthropathy, refer urgently to multidisciplinary specialist service or hospital foot clinic.
- If complex patient at risk of hospital admission, consider referral to HIP – Health Independence Program (formerly HARP).
- If Aboriginal or Torres Strait Islander patient, consider referral to Integrated Team Care.
- Refer to community podiatry service if:
  - intermediate or high risk foot without active disease.
  - patients who are elderly, visually impaired, or have physical disabilities.
  - minor injuries and foot conditions.
Information

For health professionals

Further information

- International Diabetes Foundation – Diabetic Foot Screening Pocket Chart
- National Evidence-based Guideline – Prevention, Identification, and Management of Foot Complications in Diabetes
- National Institute for Health and Care Excellence (NICE) – Diabetic Foot Problems: Prevention and Management

For patients

- Diabetes Australia – Foot Care
- Diabetic Foot Australia – Passport to Foot Disease Prevention

References

Select bibliography

- eTG Complete. Melbourne: Therapeutic Guidelines; Diabetes. 2020. [Subscription required].

Disclaimer

Last updated: September 2020