

Assessing diabetic peripheral neuropathy in primary care

Diabetic peripheral neuropathy develops in up to half of all people with diabetes and is one of the main risk factors contributing to foot ulceration and eventual amputation. There are several types of neuropathies but 90% of people with diabetic peripheral neuropathy have symmetric distal polyneuropathy, often occurring in combination with autonomic neuropathy.

The risk of developing diabetic neuropathy is proportional to both the magnitude and duration of hyperglycaemia therefore it is less likely in people with optimal long-term control of HbA_{1c} levels (< 55 mmol/mol). Other risk factors include smoking, hypertension, obesity and dyslipidaemia, increasing age and a family history of neuropathy.

Diagnosis is based on clinical suspicion, generated by a combination of findings from the history and examination. Other diagnostic possibilities that should be considered include medicines, systemic conditions, infections, autoimmune disorders, toxins, trauma and inherited conditions.

Patients with **symmetric distal polyneuropathy** usually have a predominance of sensory symptoms over motor symptoms with a mild, insidious onset and nocturnal exacerbations. Symptoms can vary widely and include the loss of sensation to pain, temperature, touch, vibration and proprioception. Symmetrical symptoms usually first appear in the toes and gradually progress proximally in a “stocking distribution” to involve the feet and legs. Involvement of the fingers and hands may occur, however, usually in people with later-stage diabetic neuropathy. Motor symptoms such as atrophy, weakness and unsteadiness are also more common later in the disease course.

Autonomic neuropathic dysfunction, with or without sensorimotor neuropathy, can involve the cardiovascular, gastrointestinal, genitourinary, sudomotor (control of the sweat glands) and ocular systems.

Examination for peripheral neuropathy should include:

- A general inspection of the feet and the patient’s footwear
- Musculoskeletal assessment for deformity (including Charcot arthropathy)
- Neurological assessment, e.g. monofilament testing, tuning fork tests
- Vascular assessment of the feet, and assessment of the heart rate and blood pressure (lying/sitting and standing)

Management – The primary goal of treatment of diabetic neuropathy is resolution of the patient’s symptoms and prevention of further nerve damage as there is no specific treatment that can reverse damage to the nervous system damage. Good glycaemic control, however, may stabilise

or even improve peripheral neuropathy over the long-term. Additional management is aimed at controlling symptoms, particularly pain, and improving the patient’s quality of life. Protecting insensate feet from trauma is also important to avoid the development of ulcers.

Mild neuropathic pain may respond to paracetamol or NSAIDs. If required, a tricyclic antidepressant or an anticonvulsant can be considered. Consider adding a weak opioid, such as codeine or tramadol (short-term use only), if the pain is not controlled. Topical treatment with capsaicin cream, 0.075%, can be considered for people with relatively localised neuropathic pain who do not wish to take, or cannot tolerate, oral treatments. Non-pharmacological methods, e.g. exercise, should also be encouraged.

When to refer patients – patients with atypical features or who fail to respond to management strategies should be referred to a Neurologist for further investigation, including patients with:

- Pronounced asymmetry of the neurologic deficits
- Predominant motor deficits, mononeuropathy or cranial nerve involvement
- Rapid development or progression of the neuropathic impairments
- Progression of the neuropathy despite optimal glycaemic control
- Symptoms arising from the upper limbs
- Family history of non-diabetic neuropathy
- Pain that is difficult to manage, limiting the patient’s lifestyle and daily activities or if their underlying health has deteriorated as a result

Peer group discussion points:

1. Do you routinely ask patients with diabetes whether they have symptoms of peripheral neuropathy, e.g. numbness, tingling or pain?
2. Up to 50% of people with type 2 diabetes are likely to develop peripheral neuropathy. If a patient could not detect pressure from a monofilament during a routine foot check would you routinely go on to do further neurological assessment, e.g. tuning fork tests for vibration sense or check for deep tendon reflexes?
3. Topical treatment with capsaicin cream may be effective for patients with localised neuropathic pain, however, there is debate regarding its effectiveness. If you have prescribed it for patients, have they reported benefit from its use?
4. Good glycaemic control is beneficial for patients with peripheral neuropathy; what strategies do you use to help patients achieve better glycaemic control?