

Peripheral Neuropathy

Myeloma Nurse Guide

The Myeloma Nurse Guide Series has been developed to enhance nurse knowledge, inform practice and support nurses in the delivery of high quality treatment and care to myeloma patients and families. The information has been reviewed by myeloma nurse and medical experts and should be used in conjunction with local and national policies, protocols and guidelines.

What is peripheral neuropathy?

Peripheral neuropathy describes damage to the peripheral nerve cells. In myeloma this can happen due to nerve damage by paraproteins, amyloid, hyperviscosity, or pressure from a plasmacytoma on the spinal cord or nerve roots. Peripheral neuropathy is also a significant side effect of some myeloma treatments including bortezomib, thalidomide, ixazomib and platinum-based chemotherapy regimens.

Around 80% of myeloma patients develop some type of neuropathy during their disease course, which can negatively impact on activities and quality of life.

Clinical features

Myeloma-related peripheral neuropathy occurs predominantly in the sensory neurones and mostly affects the hands and feet. Treatment-induced peripheral neuropathy affects sensory neurones and can occasionally damage motor or autonomic neurones. Symptoms of neuropathy may include:

Sensory neuropathy

- Paraesthesia symptoms
- Tingling, numbness, burning, sensitivity to touch
- Pain
- Impaired muscle tone
- Poor coordination and position sense
- Hearing loss, tinnitus

Motor neuropathy

- Muscle cramps
- Weakness and poor coordination, mobility changes/falls
- Poor manual dexterity

Autonomic neuropathy

- Bradycardia
- Orthostatic/postural hypotension
- Bowel and urinary dysfunction
- Erectile dysfunction

Assessment and monitoring

Assessment features	Rationale
Pre-treatment check for: existing neuropathy, previous exposure to neurotoxic treatments, comorbidities such as diabetes or alcoholism, nutritional deficiencies, HIV	To aid treatment decisions according to individual risk/benefit profile
Baseline neurotoxicity assessment, and at each cycle of myeloma treatment Use of a recognised assessment tool	To help assess any changes in symptoms Use of a tool helps with accurate and consistent assessment and monitoring by different staff
Assess motor skills e.g. ask patient to do up buttons, use a pen, observe mobility	To assess functional effects of neuropathy on activities of daily living (ADL)
Check for symptoms of autonomic neuropathy: postural hypotension, dizziness, changes to bowel or bladder function	To ensure such side effects of treatment are picked up and managed appropriately
Regular pain assessment, including encouraging patients to describe their pain	Patients may describe neuropathic pain differently, or not think of it as 'pain'. They may use words such as burning, shooting, pricking, tingling.
Specific tests such as thyroid function, serum B12, nerve conduction studies, MRI	To investigate the cause and extent of neuropathy

Severity of symptoms can be graded, as shown in the Appendix.

Prevention and treatment

The treatment of the myeloma itself may improve myeloma-associated neuropathy. Treatment-related neuropathy requires prompt intervention to reduce the risk of permanent damage. In most cases, neuropathy is reversible with timely and adequate dose reduction or modification. Sometimes treatment is stopped temporarily or permanently. For this reason, patients can be reluctant to report symptoms, but early dose modification may help them stay on treatment. Dose modification and/or special instructions for administration on all drugs are available on the Electronic Medicines Compendium website: <https://www.medicines.org.uk/emc/>.

Management of neuropathic pain requires specific analgesics, often used in combination. These include opioids, drugs which alter neurotransmitters or suppress pain nerve activity (e.g. gabapentin and pregabalin) and anti-depressants (e.g. amitriptyline, duloxetine). Topical treatment may be useful for painful skin areas (e.g. lidocaine patches or capsaicin cream).

Nursing management points

Assessment and monitoring

- Be vigilant for signs of neuropathy and alert the medical team about new/worsening symptoms
- Educate patients on signs and symptoms and the importance of prompt reporting

Prevention and treatment

- Explain to patients the rationale for any treatment changes and discuss any proposed alternative treatment options
- Encourage patients to report analgesia side effects e.g. drowsiness, dizziness, fatigue, nausea, bowel changes, blurred vision, dry mouth
- Monitor response to analgesia and impact of any side effects. If pain is difficult to manage, refer to the pain specialist team.
- Magnesium supplements or quinine may help alleviate muscle cramps
- Daily vitamin and nutritional supplements e.g. multi-B complex vitamins, folic acid, vitamin E, α -lipoic acid, acetyl-carnitine may help. These should either be prescribed or discussed with the doctor before starting.
- Refer to physiotherapy and occupational therapy teams if required

Self-care strategies for patients

- Take regular gentle exercise to maintain muscle tone and improve circulation
- Reduce risk of accidents by taking measures, such as:
 - Use handrails and mobility aids
 - Take care when bathing and showering, checking water temperature
 - Check feet regularly and wearing well-fitting shoes
 - Protect hands and feet from temperature extremes
 - Adopt good posture, avoid sitting cross-legged
 - Stand up slowly, especially first thing in morning
 - Inform DVLA if their neuropathy interferes with driving
- Explore non-pharmacological treatments and strategies:
 - Emollient creams e.g. cocoa butter, eucalyptus-based creams
 - Complementary therapies e.g. acupuncture, reflexology and massage
 - Using a transcutaneous electrical nerve stimulation (TENS) machine

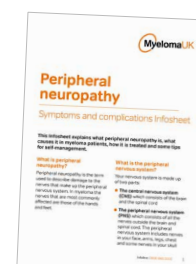
Patient information key points

- Provide written information to explain the risks of neuropathy and how it can be prevented and managed
- Ensure patients understand the importance of early reporting of symptoms

References



A list of key references is available on Myeloma Academy:
academy.myeloma.org.uk/myeloma-nurse-guide-references



Appendix

Common Toxicity Criteria Grading for neuropathy

Adverse event	Grade 1	Grade 2	Grade 3	Grade 4
Neuropathy	Asymptomatic; loss of deep tendon reflexes or paraesthesia	Moderate symptoms; limiting instrumental ADL	Severe symptoms; limiting self care ADL	Life-threatening consequences: urgent intervention indicated

ADL – activities of daily living

Functional Assessment of Cancer Therapy/Gynaecology Oncology Group Neurotoxicity Questionnaire: (FACT/GOG-Ntx)

Patients grade each of the following statements as follows:

0	Not at all
1	A little bit
2	Somewhat
3	Quite a bit
4	Very much
NTX1	I have numbness or tingling in my hands
NTX2	I have numbness or tingling in my feet
NTX3	I feel discomfort in my hands
NTX4	I feel discomfort in my feet
NTX5	I have joint pain or muscle cramps
HI12	I feel weak all over
NTX6	I have trouble hearing
NTX7	I get ringing or buzzing in my ears
NTX8	I have trouble doing up buttons
NTX9	I have trouble feeling the shape of small objects when they are in my hands

World Health Organisation (WHO) Criteria

Sensory Grade	Neuropathy
0	None or no change
1	Mild paraesthesia, loss of deep tendon reflexes
2	Mild or moderate objective sensory loss, moderate paraesthesia
3	Severe objective sensory loss or paraesthesia interfering with function



Myeloma★Academy

For further nurse guides and other educational resources on myeloma and related conditions:

academy.myeloma.org.uk

Published by:	Myeloma UK
Publication date:	August 2022
Last updated:	August 2022
Review date:	December 2024

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