Enhanced Primary Care Pathway: Diabetic Peripheral Neuropathy

1. Focused summary of DPN relevant to primary care

Based on the information provided in your referral, it is likely that your patient has diabetic peripheral neuropathy. Diabetic neuropathy is common and present in up to 50% of diabetic patients. It is typically a symmetric length dependent neuropathy (stocking glove) with sensory more than motor features. As such, patients will present with complaints of distal numbness/tingling/pain in the feet first. This may slowly ascend and once numbness and tingling is at the level of the knees the hands may be affected. Mild distal predominant weakness may develop slowly over years. Typical progression is gradual over years and may cause balance difficulty due to proprioceptive difficulties as opposed to weakness. Gait dysfunction can occur as the result of loss of sensation but not generally from weakness. Patients with accelerating progression or prominent weakness or weakness resulting in functional limitation such as foot drop should be referred for a nerve conduction study.

Neuropathic pain is pain caused by a lesion or disease of the peripheral somatosensory nervous system. It may be associated with abnormal sensations called dysesthesia or pain from normally non-painful stimuli (allodynia). Common qualities include burning or coldness, "pins and needles" sensations, numbness and itching. It may have continuous and/or episodic (paroxysmal) components. The latter resemble stabbings or electric shocks.

2. Clinical Flow Diagram to Guide Your In Clinic Review of this Patient

This AHS Calgary Zone pathway has been developed with consideration of guidelines. **The following is a best-practice clinical pathway for management of Diabetic Peripheral Neuropathy in the primary care medical home.**

Primary Care Networks
CALGARY AND AREA

Specialist *LINK*

Alberta Health Services

PERIPHERAL NEUROPATHY

Red Flags
New bowel or bladder dysfunction. New onset or acute on chronic symptoms that are progressive over days to weeks, especially motor symptoms.

YES → **Refer to Urgent Neurology Clinic**
Fax: 403.270.1848

Red Flags
- Asymmetry in presentation
- Asymmetry in progression
- Functionally limiting weakness

YES → **Refer to Neurology Central Access and Triage (NCAT)**
Fax: 403.476.8771

NO

Appropriate work up
- B12: <300 replace B12 (oral or IM) to **stop** progression - should monitor lab for response
- SPE: looking for multiple myeloma or paraproteinemia > *refer to Hematology*
- Ask about family history of hereditary neuropathy (such as Charot Marie Tooth Disease) > *refer to Neurology*
- Screen for alcoholism - manage alcoholism to **stop** progression
- TSH: treat hypothyroidism to **stop** progression
- Creatinine
- High risk patient > consider HIV testing
- HgA1C - Consider glucose tolerance test if normal and high suspicion for IGT
- Screen for exposure to toxins or medications that can cause neuropathy

DIABETIC

YES

Diabetic Peripheral Neuropathy

Consider
- Starting or refining diabetic management
- Diabetic foot care - podiatry/foot and ulcer clinic
- Diabetic teaching (refer or re-refer)

Confirmatory features
- Symmetrical stocking/glove distribution
- Sensory > motor involvement
- Symptoms may initially be intermittent

For routine polyneuropathy, a nerve conduction test is not necessary. If causing functional impairment, or there is uncertainty about the diagnosis EMG is reasonable.

Medications for symptom management
- See attached Canadian Guidelines for neuropathic pain

If no improvement call Specialist *LINK* for Chronic Pain Nurse Practitioner

Specialist *LINK* | Local: **403.910.2551** | Toll free: **1.844.962.5465 (LINK)** | **www.specialistlink.ca**

3. Links to additional resources	
For physicians:	www.iasp-pain.org/Education/Content.aspx?ItemNumber=6530 (International Association For the Study of Pain – Neuropathic Pain Publications and Guidelines)
	www.nice.org.uk/guidance/cg173 (National Institute for Health and Care Excellence – Neuropathic pain in adults: pharmacological management in non-specialist settings)
	www.cfp.ca/content/63/11/844 (Canadian Family Physician: Pharmacologic management of chronic neuropathic pain)
	https://www.albertahealthservices.ca/scns/Page13331.aspx (Diabetes Foot Care Clinical Pathway Tools and Resources)
For patients:	www.chronicpaincanada.com (Chronic Pain Association of Canada)
	www.canadianpainsociety.ca (Canadian Pain Society)
	www.painbc.ca (Pain BC)
	www.cirpd.org (Canadian Institute for the Relief of Pain and Disability)
	www.youtube.com/watch?v=C_3phB93rvI (Understanding pain: What to do about it in less than 5 minutes, Hunter Integrated Pain Service) (or go to Google YouTube and type in "*understanding chronic pain five minutes*")
	www.paintoolkit.org (Pete Moore, UK, person with pain; skills covered include acceptance, pacing, setting goals, relaxation, self-monitoring, flare-up)
	Better Choices Better Health: Self-Management Workshops: Contact Alberta Healthy Living Program – Calgary Zone for information and to register: 403-9-Health (403-943-2584) or go to: www.albertahealthservices.ca/services/bcbh.aspx

4. Treatment Guideline for Management of Diabetic Peripheral Neuropathy

Suggested management of pain from peripheral neuropathy:

First line treatments are outlined below and are considered equivalent in efficacy. Treatment choice should be based on side effect profile in combination with patient preference. An adequate trial is considered 6 weeks at target dosage. Slow titration over the course of 2-4 weeks to reach target dosage should be used for all medications listed.

Medication	Starting Dose	Target Dose	Maximum Dose
Gabapentin	100mg qhs	600mg TID	1200mg TID
Pregabalin	25mg qhs	150mg BID	300mg BID
SSRI - Duloxetine	30mg qdaily	60mg qdaily	No additional analgesic benefit above 60mg qdaily
SSRI -Venlafaxine	37.5mg qdaily	150mg qdaily	225mg qdaily
Amitriptyline	10mg qhs	30-50mg qhs or divided doses	100mg qhs or divided doses
Nortriptyline	10mg qhs	30-50mg qhs or divided doses	100mg qhs or divided doses

Recommendations based on:
Pharmacotherapy for neuropathic pain in adults: a systematic review and meta-analysis
Finnerup, Nanna B et al. The Lancet Neurology, Volume 14, Issue 2, 162 - 173

Also consider topical treatments based on their low chance of seriously adverse side effects. Consider one of the following:

- Amitriptyline 5% topically bid or tid
- Lidocaine 5% topically bid or tid
- Ketamine 10% topically bid or tid
- Prescription tips:
    - Start with single ingredients to identify which ingredients are effective. If more than one agent is helpful, they can be combined in one preparation.
    - Most pharmacies will carry PLO gel and can make simple compounds, e.g. diclofenac in PLO gel. If they do not have compounding facilities, the majority of pharmacies will subcontract to a pharmacy that does so.
    - Patients complaining of stickiness from PLO gel may benefit from a vanishing penetrating cream (Trans-Pen, VanishingPen, or VanPen). A simple prescription for a topical agent will leave the pharmacist free to use whichever base is appropriate for your patient.

If your patient fails 2 first line treatment trials please call Specialist Link to arrange a telephone consultation with a pain specialist.