Neuropathy: What It Is and How to Treat it

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Objectives

• Defining peripheral neuropathy
• Causes of peripheral neuropathy
• Risk Factors
• Symptoms of peripheral neuropathy
• Testing for peripheral neuropathy
• Treating peripheral neuropathy
  ▪ Underlying cause
  ▪ Symptom management
Defining peripheral neuropathy

- Central nervous system and peripheral nervous system
- Nerves control our sensation and movement
- Neuropathy is damage to the peripheral nerves
- More than 100 different types of peripheral neuropathy
- Affects the long nerves initially, felt primarily in the hands and/or feet

Causes of Peripheral Neuropathy

- Diabetic
- Alcohol
- HIV induced neuropathies
- Nutritional imbalance: B12 deficiency
- Carpal tunnel syndrome
- Chemotherapy induced neuropathies
- GVHD associated peripheral neuropathy
Chemotherapy-Induced Peripheral Neuropathy

• Neurotoxic chemotherapies – high risk:
  ▪ bortezomib
  ▪ thalidomide
  ▪ taxanes (taxol),
  ▪ vinka alkaloids (vincristine)

• 30-40% of people can develop peripheral neuropathy after using neurotoxic chemotherapy

Graft-versus-Host Disease (GVHD) and Peripheral Neuropathy

• Neuropathy can be associated with chronic GVHD

• 0.6 to 6.1% of patients after transplant

• Average onset was 5.5 months after transplant

• Associated with long term immunosuppressant use
Risk Factors

- Diabetes
- Alcohol use
- Long term use of immunosuppression medications
- Age
- Smoking history
- Baseline neuropathy
- Kidney impairment

Symptoms of Peripheral Neuropathy

- Sensory
  - Numbness
  - Tingling
  - Pain
  - Decreased or increased sensations
  - Temperature changes
Symptoms of Peripheral Neuropathy

• Motor
  • Weakness
  • Imbalance
  • Muscle cramping and muscle loss
• Autonomic
  • Lightheaded (change in blood pressure)
  • Impaired food digestion
  • Erectile dysfunction

Testing for Peripheral Neuropathy

• Physical exam
  • Light touch
  • Vibration testing with a tuning fork
  • Strength testing
  • Reflexes
  • Walking test
• Blood tests (vitamin deficiencies)
Testing for Peripheral Neuropathy

• Nerve conduction test: measures strength and speed of motor and sensory nerves

• Electromyography (EMG): measures electrical nerve activity and can distinguish between muscle issues and nerve disorders

Testing for Peripheral Neuropathy

• Nerve biopsy (sensory nerve from lower leg): very beneficial but can damage the nerve further

• Skin biopsy: examine the nerve fiber endings
Radiology Testing for Peripheral Neuropathy

MRI or CT imaging to look at nerve compression

Managing Peripheral Neuropathy

• Treat the underlying cause
• Symptom management
• Treatment varies depending on
  ▪ cause
  ▪ location
  ▪ symptoms
Treating the Underlying Cause of Peripheral Neuropathy

• Fix the underlying cause if possible
  ▪ If drug induced, consider stopping the drug or changing the dose after discussing with your health team
  ▪ If vitamin deficiency, treat with vitamin supplement
• If disease induced – is the disease under control? (multiple myeloma)

Treating Underlying Cause: Carpal Tunnel

• Carpal tunnel: compression of the median nerve in the wrist
• Numbness and tingling in the fingers, hand, wrist
• Wrist brace to keep your wrist straight at night and thus prevent compression of the nerve
• OTC pain medication or anti-inflammatory medication
• Surgical intervention
Treatment: Symptom Management

- **Self care**
  - Smoking cessation
  - Exercise
  - Adequate control of diabetes
  - Weight control and good eating habits

- **Supplements:** alpha-lipoic, B complex, acetyl-l-carnitine

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Treatment: Symptom Management

- **Medications**
  - Anti-depressants: duloxetine, nortryptilline
  - Anti-convulsants: gabapentin, lyrica
  - Over the counter pain medication
  - Narcotics

- **Topical treatment**
  - Lidocaine patch or gel
  - Capsaicin cream
  - Soaking feet in cool water (epson salts)
Nonpharmacologic Symptom Management

- Physical therapy
  - Gait training/balance training
  - Strengthening
  - Endurance
- Occupational therapy
  - Finding aides to assist
  - Useful for fine motor or sensory deficits

Nonpharmacologic Symptom Management

- Cognitive behavioral therapy
- Acupuncture
- Massage
- Aides
  - Orthopedic shoes
  - Walker for gait imbalance
  - Hand or foot braces
Foot Care

- Sturdy shoes
- Observe for injuries or skin breakdown
- Keep dry
- Wear shoes at all times

QUESTIONS?

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