MAYO CLINIC LABORATORIES

Hereditary Peripheral Neuropathy Diagnostic Algorithm

Inherited neuropathy suspected
The following tests should be performed in all adult patients:
HbA1c or glucose tolerance, vitamin B12, monoclonal proteins.

Nerve conduction studies show:
Ulnar motor forearm nerve conduction velocity <38 m/s (compound muscle action potential test >0.5 mV)
AND/OR
blink reflex R1 >13 ms
OR
Hereditary neuropathy with pressure palsies (HNPP) is suspected (diffuse sensory nerve conduction velocity slowing, motor conduction blocks at points of compression, prolonged motor nerve distal latencies)

YES

Order PMPDD / *PMP22* Gene, Large Deletion and Duplication Analysis

POSITIVE

Charcot-Marie-Tooth disease type 1A (CMT1A)
– *PMP22* duplication
HNPP
– *PMP22* deletion

Disorder-specific management

NEGATIVE But HNPP still suspected

Using Custom Gene Ordering Tool order: *PMP22* Sequencing

POSITIVE

HNPP missense mutations

Disorder-specific management

NEGATIVE

Consider: NPPAN / Peripheral Neuropathy Genetic Panels by Next-Generation Sequencing, Blood
- Specify subpanel Peripheral Neuropathy Expanded Panel (193 genes)

NEGATIVE

Consider: NPPAN / Peripheral Neuropathy Genetic Panels by Next-Generation Sequencing, Blood
- Specify subpanel Peripheral Neuropathy Expanded Panel (193 genes)

POSITIVE

Disorder-specific management

NEGATIVE OR INCONCLUSIVE

Consider: WES / Whole Exome Sequencing or whole genome sequencing

NO

EITHER <50 years of age at onset with no obvious acquired cause
OR
Definitive family history

YES

Consider: NPPAN / Peripheral Neuropathy Genetic Panels by Next-Generation Sequencing, Blood
- Specify subpanel Peripheral Neuropathy Expanded Panel (193 genes)

NO

Type of neuropathy

Predominant motor neuropathy (length dependent)

Consider: NPPAN / Peripheral Neuropathy Genetic Panels by Next-Generation Sequencing, Blood
- Specify subpanel Peripheral Neuropathy Expanded Panel (193 genes)

Predominant sensory neuropathy (length dependent)

Expand acquired etiology search:
- Immune-mediated inflammatory, eg, Sjögren, lupus, polyarteritis nodosum
- Metabolic: eg, thyroid disease, vitamin B6 deficiency or toxicity
- Toxic: eg, ethanol, heavy metals, organophosphates
- Infectious disease: eg, CMV, EBV, HIV, HCV, Lyme disease
- PAVAL / Paraneoplastic Autoantibody Evaluation, Serum
- PAC1 / Paraneoplastic Autoantibody Evaluation, Spinal Fluid

POSITIVE

Disorder-specific management

NEGATIVE

Diagnostic of chronic idiopathic axonal polyneuropathy (CIAP)
OR
Consider ordering: NPPAN / Peripheral Neuropathy Genetic Panels by Next-Generation Sequencing (NGS), Blood
Specify one of the following subpanels (see Peripheral Neuropathy Gene Panels box):
- Hereditary Sensory Neuropathy Panel
- Peripheral Neuropathy Expanded Panel

Peripheral Neuropathy Gene Panels:
- Hereditary Motor Neuropathy Panel (23 genes)
- Hereditary Sensory Neuropathy Panel (18 genes)
- Metabolic or Syndromic Neuropathies (74 genes)
- Motor and Sensory Neuropathy Panel (82 genes)
- Peripheral Neuropathy Expanded Panel (193 genes)
- *SEPT9* Gene, Full Gene Analysis (1 gene)
- Spastic Paraplegia Neuropathy Panel (41 genes)
- Custom Gene Panel (select genes from list) via Custom Gene Ordering (CGO) Tool

Clickable PDF
Click on blue tests to view test catalog information

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