Recognize the red-flag symptoms of hATTR amyloidosis

Because hereditary transthyretin-mediated (hATTR) amyloidosis affects multiple organs, patients can present with a range of sensory and motor, autonomic, and cardiac symptoms. **Multisystem involvement or a family history of these symptoms are red flags of hATTR amyloidosis. Recognizing these signs can be the first step to a definitive diagnosis.**[1-4]

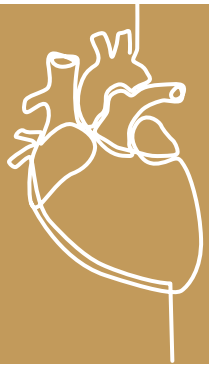
Look for signs of multisystem involvement, which may include[a]:

Sensory-motor neuropathy[1,2]

- Length-dependent neuropathic pain and numbness
- Altered sensation
- Weakness
- Difficulty walking
- Bilateral carpal tunnel syndrome

Autonomic neuropathy[1,2]

- Orthostatic hypotension
- Diarrhea, constipation, nausea and vomiting
- Unintentional weight loss
- Recurrent urinary tract infections
- Sexual dysfunction



Cardiac manifestations[3]

- Conduction abnormalities
- Arrhythmias
- Heart failure
- Left ventricular hypertrophy

Additional signs[2,3]:

Rapid symptom progression, nephropathy, ocular manifestations, failure to respond to immunomodulatory treatment, intolerance of commonly used cardiovascular medications

[a]Not a comprehensive list of all the symptoms associated with hATTR amyloidosis.

Identify the signs through diagnostic tools[a]

Several types of tests can help identify the signs of hATTR amyloidosis.

Sensory-motor assessments[1,5]	
Electromyography (EMG)	• Fibrillation potentials and positive sharp waves signifying axonal injury and active denervation • Volitional motor unit recruitment consistent with chronic denervation and reinnervation
Nerve conduction study (NCS)	• Axonal large-fiber polyneuropathy with greater sensory involvement than motor • Absent or reduced sensory nerve conduction amplitudes • Reduced or absent motor nerve conduction amplitudes with normal to mildly slowed conduction velocities
Autonomic assessments[1,5]	
Heart rate deep breathing	• Reduced heart rate variability in response to deep breathing
Tilt table	• Orthostatic hypotension in response to upright tilt
Cardiac assessments[3,6]	
Electrocardiography (ECG)	• Low voltage • Pseudo-infarction pattern • Progressive reduction in QRS voltage over time • Atrioventricular (AV) block
Echocardiography	• Left ventricular wall thickening • Refractile myocardium (granular sparkling) • Low tissue Doppler velocities, reduced longitudinal strain that may be more pronounced at the base than the apex
Cardiac magnetic resonance imaging (CMRI)	• Left ventricular wall thickening • Subendocardial late gadolinium enhancement

[a]Not a comprehensive list of diagnostic tools.

Learn more about hATTR amyloidosis and find out how to ensure a timely diagnosis by visiting www.hATTRamyloidosis.com.

References: 1. Ando Y, Coelho T, Berk JL, et al. *Orphanet J Rare Dis.* 2013;8:31. **2.** Conceição I, González-Duarte A, Obici L, et al. *J Peripher Nerv Syst.* 2016;21(1):5-9. **3.** Dharmarajan K, Maurer MS. *J Am Geriatr Soc.* 2012;60(4):765-774. **4.** Gertz MA. *Am J Manag Care.* 2017;23(suppl 7):S107-S112. **5.** Shin SC, Robinson-Papp J. *Mt Sinai J Med.* 2012;79(6):733-748. **6.** Falk RH, Quarta CC. *Heart Fail Rev.* 2015;20(2):125-131.