AMYLOID TRANSTHYRETIN (ATTR) AMYLOIDOSIS: SIGNS, SYMPTOMS, AND DIAGNOSTIC WORKUP

TWO MAIN TYPES OF ATTR AMYLOIDOSIS

- Hereditary ATTR amyloidosis—affects multiple organs and body systems (eg, heart, nervous system, gastrointestinal tract, and kidney)[1-3]
- Wild-type ATTR amyloidosis—primarily affects the heart[1-2]

	Manifestations, Signs, and Symptoms[a]	"Red-flags"
NEUROPATHY[4]	• Peripheral sensory-motor neuropathy	• Progressive symmetric sensory-motor neuropathy (plus ≥1 other "red flag" manifestation is suggestive of hereditary ATTR amyloidosis-polyneuropathy)
BILATERAL CARPAL TUNNEL SYNDROME[4,7,8]	• Bilateral carpal tunnel syndrome	• Bilateral carpal tunnel syndrome (especially if family history)
AUTONOMIC NEUROPATHY[4]	• Orthostatic hypotension • Recurrent urinary tract infection (due to urinary retention) • Sexual dysfunction • Sweating abnormalities	• Orthostatic hypotension (early "red flag")
CARDIOVASCULAR MANIFESTATIONS[4-6,9-11]	• Irregular heart beat • Conduction blocks • Congestive heart failure (including shortness of breath, generalized fatigue, peripheral edema) • Ventricular wall thickening with preserved ejection fraction and absence of left ventricular dilation • Cardiomyopathy • Mild regurgitation	• Irregular heart beat (atrial fibrillation most common) • Conduction blocks (fascicular and bundle branch block) • Increased ventricular wall thickness
GASTROINTESTINAL MANIFESTATIONS[4]	• Nausea and vomiting • Early satiety • Diarrhea • Severe constipation • Diarrhea/constipation • Unintentional weight loss	• Chronic diarrhea • Constipation • Diarrhea/constipation • Unexplained weight loss
NEPHROPATHY[4]	• Protein in urine • Renal failure	• Protein in urine • Mild azotemia
OCULAR MANIFESTATIONS[4]	• Dark floaters • Glaucoma • Abnormal blood vessels in eye • Pupillary abnormalities	• Dark floaters
OTHER[7,12]	• Lumbar spinal stenosis • Spontaneous biceps tendon rupture	• Lumbar spinal stenosis • Spontaneous biceps tendon rupture

[a]CNS symptoms can occur with certain TTR mutations but are not a common manifestation.

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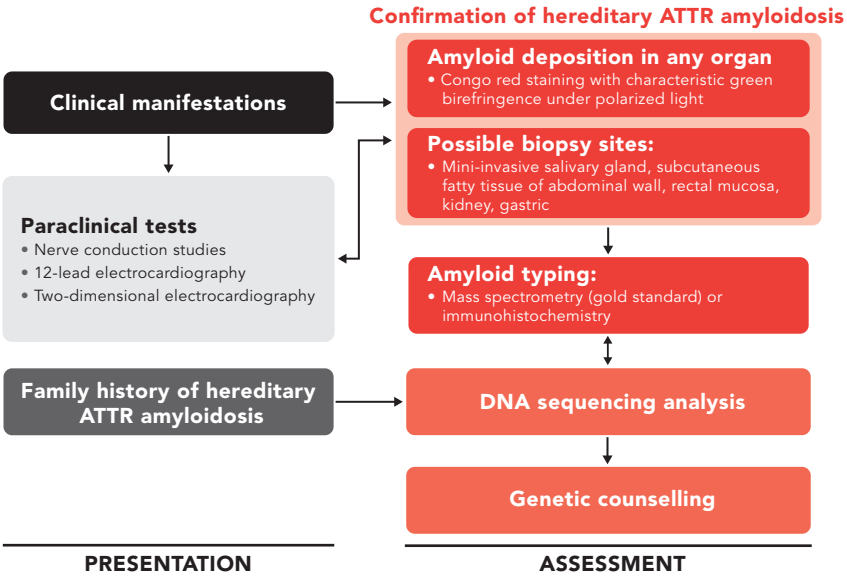
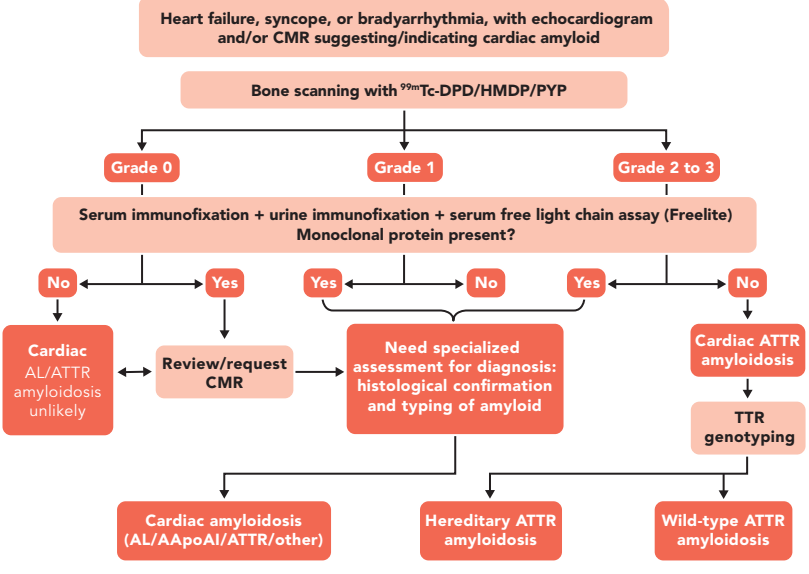
DIAGNOSTIC WORKUP: POLYNEUROPATHY[a]



DIAGNOSTIC WORKUP: CARDIAC[b]



^{99m}Tc-DPD, ^{99m}technetium-labeled 3-diphosphono-1,2-propanodicarboxylic acid; AApoAI, apolipoprotein AI-derived amyloidosis; AL, amyloid light chain; ATTR, amyloid transthyretin; CMR, cardiac magnetic resonance imaging; DNA, deoxyribonucleic acid; HMDP, hydroxymethylene diphosphonate; PYP, pyrophosphate; TTR, transthyretin. [a]Figure modified with permission from Carvalho A, et al.; [b]Figure reproduced with permission from Gillmore JD, et al.

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