

# HCM vs ATTR-CM: MAKING A DIFFERENTIAL DIAGNOSIS

**~ 1 in 5** adults aged 50 years and older with HCM may actually have ATTR-CM.<sup>1\*</sup>

## ETIOLOGY OF ATTR-CM AND HYPERTROPHIC CARDIOMYOPATHY

### ATTR-CM

- **Misfolding of TTR protein**, possibly due to aging or due to an inherited genetic variant. Pathogenic TTR can aggregate in the heart, nerves, musculoskeletal system, and gastrointestinal tract, leading to multisystem manifestations<sup>2-4</sup>



Amyloid fibrils depositing into myocardial tissue

### HCM

- **Thickening of heart muscles** due to an inherited genetic variant or due to other nonfamilial causes<sup>5-7</sup>

## OVERLAPPING FINDINGS WITH HCM AND ATTR-CM CAN CONFOUND DIAGNOSIS

Early intervention is crucial to slowing ATTR-CM progression, but overlapping findings with HCM can delay ATTR-CM diagnosis.<sup>3,8-11</sup>

**Signs that may be identified via echo, ECG, or cMRI<sup>1,5,8,12</sup>:**

- LV hypertrophy
- Arrhythmias, including atrial fibrillation

**Other clinical symptoms and biomarkers<sup>1,5,8,12</sup>:**

- Elevated NT-proBNP and troponin I
- Shortness of breath
- Edema
- Fatigue
- Syncope



**See reverse for more information on how to spot these signs via echo and cMRI**

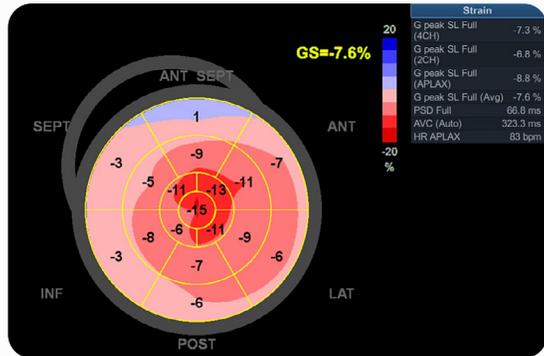
\*Based on an epidemiological study of 766 patients with an HCM diagnosis.<sup>1</sup>

ATTR-CM=cardiomyopathy of transthyretin-mediated amyloidosis; cMRI=cardiac magnetic resonance imaging; ECG=electrocardiogram; echo=echocardiogram; HCM=hypertrophic cardiomyopathy; HF=heart failure; LV=left ventricular; NT-proBNP=N-terminal prohormone of brain-type natriuretic peptide; TTR=transthyretin.

# SUSPICION AND DIAGNOSIS OF ATTR-CM

Signs on echo and cMRI that may increase clinical suspicion for ATTR-CM

## ECHOCARDIOGRAPHY



Longitudinal strain bull's-eye map

Image reproduced with permission from Baptista et al.<sup>13</sup>

Look for<sup>3,13-17</sup>:

- Reduction in longitudinal strain with relative apical sparing (shown)
- Biatrial enlargement
- Thickening of valves and septum
- Refractile myocardium

## CARDIAC MRI



Late gadolinium enhancement

Image reproduced with permission from Quarta et al.<sup>18</sup>

Look for<sup>8,15,16,18</sup>:

- Diffuse, subendocardial or transmural late gadolinium enhancement (shown)
- Increased extracellular volume fraction

## ADDITIONAL SIGNS OF ATTR-CM

- Electrocardiographic findings, including low QRS voltage relative to degree of LV wall thickness; pseudo-infarction; and AV conduction block<sup>12,15,19</sup>
- Intolerance to HF treatments\*, bilateral carpal tunnel syndrome, and lumbar spinal stenosis<sup>3,8,10-12,15,20-23</sup>

Establish a diagnosis in 3 steps<sup>3,8</sup>

1. Rule out AL amyloidosis with simple monoclonal light-chain assays
2. Detect amyloid deposition in myocardial tissue with nuclear scintigraphy or tissue biopsy
3. Use genetic testing to determine if ATTR-CM is hereditary

[Click here to learn more about suspecting ATTR-CM.](#)

Diagnosis is based on the independent medical judgment of the healthcare professional.

\*Patients with ATTR-CM can have intolerance to standard medications for heart failure, including ARNi, ACEi, ARB, or beta blockers.<sup>3,8,10-12,15,20-23</sup>

ACEi=angiotensin-converting enzyme inhibitor; AL=amyloid light chain; ARB=angiotensin receptor blocker; ARNi=angiotensin receptor-neprilysin inhibitor; HF=heart failure; QRS=Q wave, R wave, S wave.

**References:** 1. Garcia-Pavia et al. *Esc Heart Fail*. 2024;11:4314-4324. 2. Maurer et al. *J Am Coll Cardiol*. 2016;68:161-172. 3. Kittleson et al. *J Am Coll Cardiol*. 2023;81:1076-1126. 4. Bezerra et al. *Front Mol Neurosci*. 2020;13:592644. 5. Marian et al. *Circ Res*. 2017;121:749-770. 6. Maron et al. *J Am Coll Cardiol*. 2022;79:372-389. 7. Bonaventura et al. *J Am Heart Assoc*. 2023;12:e028974. 8. Kittleson et al. *Circulation*. 2020;142:e7-e22. 9. Rozenbaum et al. *Cardiol Ther*. 2021;10:141-159. 10. Nativi-Nicolau et al. *Heart Fail Rev*. 2022;27:785-793. 11. Maurer et al. *Circ Heart Fail*. 2019;12:e006075. 12. Maloberti et al. *Int J Cardiol Cardiovasc Risk Prev*. 2024;21:200271. 13. Baptista et al. *Cureus*. 2003;15:e33364. 14. Dorbala et al. *Circ Cardiovasc Imaging*. 2021;14:e000029. 15. Dharmarajan et al. *J Am Geriatr Soc*. 2025;60:765-774. 16. Maurer et al. *Circulation*. 2017;135:1357-1377. 17. Falk RH et al. *Heart Fail Rev*. 2015;20:125-131. 18. Quarta et al. *Br J Radiol*. 2011;84(Spec Iss 3):S296-S305. 19. Witteles et al. *JACC Heart Fail*. 2019;7:709-716. 20. González-López et al. *Eur Heart J*. 2015;36:2585-2594. 21. Castaño et al. *Eur Heart J*. 2017;38:2879-2887. 22. Brito et al. *Glob Heart*. 2023;18:59. 23. Mitter et al. ISA Congress 2020.