# ATTR Management Guidelines

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# ATTR Disease State Slide Deck

- This resource provides information about ATTR.
- This resource is intended to be viewed in its entirety to support scientific exchange and is not intended as recommendations for clinical practice.
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# Guidelines on Disease Management

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# Guidelines on Disease Management

| Guideline | Global or country-specific | Topics addressed | | | | | |
|---|---|---|---|---|---|---|---|
| | | hATTR | wtATTR | Polyneuropathy | Cardiomyopathy | Diagnosis | Monitoring and treatments |
| 2013 ISA guideline of transthyretin-related hereditary amyloidosis for clinicians[1] | Global | ✓ | | ✓ | ✓ | ✓ | ✓ |
| 2022 ISA guidelines and new directions in the therapy and monitoring of hATTR amyloidosis (closed-access)[2] | Global | ✓ | | ✓ | ✓ | | ✓ |
| 2022 AHA/ACC/HFSA guideline for the management of heart failure[3] | US | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Diagnosis and treatment of cardiac amyloidosis (ESC)[4] | Europe | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Canadian guidelines for hereditary transthyretin amyloidosis polyneuropathy management (closed-access)[5] | Canada | ✓ | | ✓ | ✓ | ✓ | ✓ |
| JCS 2020 guideline on diagnosis and treatment of cardiac amyloidosis[6] | Japan | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

ACC, American College of Cardiology; AHA, American Heart Association; ATTR, transthyretin-mediated; hATTR, hereditary ATTR; wtATTR, wild-type ATTR; ESC, European Society of Cardiology; HFSA, Heart Failure Society of America; ISA, International Society of Amyloidosis; JSC, Japanese Circulation Society.

1. Ando et al. *Orphanet J Rare Dis.* 2013;8:31; 2. Ando et al. *Amyloid.* 2022; 29(3):143–55; 3. Heidenreich et al. *J Am Coll Cardiol.* 2022;79(17):e263–421; 4. Garcia-Pavia et al. *Eur J Heart Fail.* 2021;23:512–26; 5. Alcantara et al. *Can J Neurol Sci.* 2022;49(1):7–18; 6. Kitaoka et al. *Circ J.* 2020;84(9):1610–71.



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# Expert Consensus on Disease Management

| Expert consensus | Global or country-specific | Topics addressed | | | | | |
|---|---|---|---|---|---|---|---|
| | | hATTR | wtATTR | Polyneuropathy | Cardiomyopathy | Diagnosis | Monitoring and treatments |
| Avoiding misdiagnosis: recommendations for the suspicion and diagnosis of transthyretin amyloidosis for the general practitioner[1] | Global | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Recommendations for the suspicion and diagnosis of transthyretin cardiac amyloidosis[2] | Global | ✓ | ✓ | | ✓ | ✓ | |
| Recommendations to improve diagnosis of ATTR amyloidosis with polyneuropathy[3] | Global | ✓ | | ✓ | | ✓ | |
| Recommendations for multimodality imaging in cardiac amyloidosis: part 1 of 2—evidence base and standardized methods of imaging[4] | Global | ✓ | ✓ | | ✓ | ✓ | |
| Recommendations for multimodality imaging in cardiac amyloidosis: part 2 of 2—diagnostic criteria and appropriate utilization[5] | Global | ✓ | ✓ | | ✓ | ✓ | |
| Brazilian consensus for diagnosis, management and treatment of transthyretin familial amyloid polyneuropathy[6] | Brazil | ✓ | | ✓ | | ✓ | ✓ |
| Monitoring symptomatic hereditary transthyretin-mediated amyloidosis and assessment of disease progression[7] | Global | ✓ | | ✓ | ✓ | | ✓ |
| World Heart Federation consensus on transthyretin amyloidosis cardiomyopathy (ATTR-CM)[8] | Global | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Diagnosis and treatment of hereditary transthyretin amyloidosis with polyneuropathy in the United States[9] | US | ✓ | | ✓ | | ✓ | ✓ |

ATTR, transthyretin amyloidosis; ATTR-CM, ATTR with cardiomyopathy; hATTR, hereditary ATTR; wtATTR, wild-type ATTR.

1. Gertz et al. *BMC Fam Pract.* 2020;21:198; 2. Maurer et al. *Circ Heart Fail.* 2019;12(9):e006075; 3. Adams et al. *J Neurol.* 2021;268(6):2109–22; 4. Dorbala et al. *Circ Cardiovasc Imaging.* 2021;14(7):e000029; 5. Dorbala et al. *Circ Cardiovasc Imaging.* 2021;14(7):e000030; 6. Pinto et al. *Arq Neuropsiquiatr.* 2018;76(9):609–21; 7. Adams et al. *Orphanet J Rare Dis.* 2021;16:411; 8. Brito et al. *Glob Heart.* 2023;18(1):59; 9. Karam et al. *Muscle Nerve.* 2024; 69 (3):273-287.



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# ESC Position Statement on Diagnosis and Treatment of Cardiac Amyloidosis (1/2)

## Proposed follow-up scheme in ATTR amyloidosis with cardiomyopathy

| Patient type | Recommendation |
|---|---|
| ATTR amyloidosis with cardiomyopathy patients | **Every 6 months:**<br>• ECG, blood tests including NT-prBNP and troponin, neurological evaluation (if hATTR), 6MWD (optional), KCCQ (optional)<br>**Every 12 months:**<br>• Echocardiography/CMR, 24h Holter ECG, ophthalmological evaluation (if hATTR) |
| hATTR asymptomatic genetic carriers[a] | **Yearly:**<br>• ECG, blood tests including NT-proBNP and troponin, neurological and ophthalmological evaluation<br>**Every 2 years:**<br>• Holter ECG<br>**Every 3 years if any of the above complementary tests are abnormal:**<br>• Scintigraphy, CMR |

2021 ESC position statement for the diagnosis and treatment of cardiac amyloidosis is publicly available and can be accessed here https://onlinelibrary.wiley.com/doi/10.1002/ejhf.2140

6MWD, 6-min walking distance; ATTR, transthyretin amyloidosis; hATTR, hereditary ATTR; CMR, cardiac magnetic resonance; ECG, electrocardiogram; ESC, European Society of Cardiology; KCCQ, Kansas City Cardiomyopathy Questionnaire; NT-proBNP, N-terminal pro B-type natriuretic peptide.

1. Garcia-Pavia et al. *Euro J Heart Fail.* 2021;23(4):512–26.



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# ESC Position Statement on Diagnosis and Treatment of Cardiac Amyloidosis (2/2)

## Treatment of cardiac complications and comorbidities in cardiac amyloidosis

| Cardiac complication/comorbidity | Recommendation |
|---|---|
| Aortic stenosis | • In amyloid-AS, **TAVR** improves patient outcome<br>• Concomitant wtATTR amyloidosis risk factor of periprocedural AV block |
| Heart failure | • **Control fluid; diuretics**<br>• **Deprescribe B-blockers and avoid ACEi/ARB**<br>• LVAD not suitable for most patients<br>• Heart transplant for selected cases |
| Thromboembolism | • **High risk, common**<br>• **Anticoagulate** if AF; consider in selected cases of SR<br>• Anticoagulate independent of $CHA_2DS_2$-VASc[a] score |
| Atrial fibrillation | • **Amiodarone** is the preferred AA<br>• Use of digoxin with caution<br>• Electrical CV has significant risk of complications and AF recurrence is frequent; exclude thrombi beforehand<br>• Data are scarce and controversial for AF ablation |
| Conduction disorders | • **PPM**, according to standard indications<br>• If high paced burden is expected, consider CRT |
| Ventricular arrhythmias | • **ICD** for secondary prevention; not recommended in primary prevention<br>• Transvenous ICD preferred over subcutaneous |

2021 ESC position statement for the diagnosis and treatment of cardiac amyloidosis is publicly available and can be accessed here https://onlinelibrary.wiley.com/doi/10.1002/ejhf.2140

[a]Congestive heart failure, hypertension, age ≥75, diabetes, stroke, vascular disease, age 65-74, sex category.

6MWD, 6-min walking distance; AA, antiarrhythmic; ACEi, angiotensin-converting enzyme inhibitor; AF, atrial fibrillation; ARB, angiotensin receptor blocker; AS, aortic stenosis; ATTR, transthyretin amyloidosis; AV, atrioventricular; CMR, cardiac magnetic resonance; CRT, cardiac resynchronization therapy; CV, cardioversion; ECG, electrocardiogram; ESC, European Society of Cardiology; ICD, implantable cardioverter-defibrillator; LVAD, left ventricular assist device; KCCQ, Kansas City Cardiomyopathy Questionnaire; NT-proBNP, N-terminal pro B-type natriuretic peptide; PPM, permanent pacemaker; SR, sinus rhythm; TAVR, transcatheter aortic valve replacement; wtATTR, wild-type ATTR.

1. Garcia-Pavia et al. *Eur J Heart Fail.* 2021;23(4):512–26.



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