Prevalence and prognostic impact of cardiac amyloidosis in patients with severe aortic stenosis undergoing transcatheter aortic valve implantation. AMY-TAVI study

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Background: Aortic stenosis (AS) and cardiac transthyretin amyloidosis (CTTRA) are two diseases that are typically associated with aging. In both cases, dyspnea is the main symptom, so the diagnosis of CTTRA in patients with AS is underestimated.

Purpose: To determine the real prevalence of CTTRA in patients with AS and its influence on prognosis.

Methods: After implantation, and before hospital discharge, CTTRA screening was carried out by performing a scintigraphy with 99mTc-3,3-diphosphono-1,2-propanedicarboxylic acid, and monoclonal peak in peripheral blood and urine was excluded to rule out CA-AL. According to Perrugini’s classification, CATTR grades 1, 2 and 3 were established and grade 0 as the absence of CATTR.

Result: 325 patients were included. The incidence of CTTRA was 11.7% (38 patients). Grade 1 39.4% (15 patients), grade 2 34.2% (13 patients) and grade 3 26.3% (10 patients). Patients with CATTR were more frequently male (female 36.8% vs 54%, p=0.046), had a lower mean transvalvular gradient (43.2±14.0 mmHg vs 50.9±14.7 mmHg, p=0.003), and greater thickness of the interventricular septum (15.4±2.3 mm vs 14.4±2.7 mm, p=0.038). There were no differences in the rest of the clinical or analytical variables, including functional class or NT proBNP levels (3663.3±4343.9 vs 3815.4±7901.7, p=0.912).

According to the Valve Academic Research Consortium-3 classification, there were no differences in in-hospital complications between the two groups, stroke (3.1% vs 2.6%, p=0.866), greater bleeding (7.3% vs 15.8%, p=0.202), acute kidney injury stage 3 (2.1% vs 0.9%, p=0.566), permanent pacemaker implantation (19.2% vs 13.2%, p=0.370), acute myocardial infarction (0.3% vs 0%, p=0.647). Mean follow-up time was 19.0±7.4 months (median: 19.2, IQR 12.5–25.7 months). During this time, there was no difference in the appearance of MACE, defined as all-cause mortality, heart failure, acute myocardial infarction and stroke, between patients with and without CTTRA (Figure 1A). Nor when we analyze these events separately. Finally, the evolution in functional class and NT proBNP values six months after implantation were analyzed. Although there was an improvement in functional class in all groups, this was not significant in patients with CTTRA grade 3, going from 30% of patients in NYHA class III–IV at baseline to 22.2% at 6 months (p=0.556). Regarding the NT proBNP values, these decreased in all the groups but they only did so significantly in the patients without CTTRA (Figure 2).

Conclusion: The coexistence of AS and CTTRA in patients undergoing TAVR is relatively frequent. Although there are no more in-hospital or mid-term follow-up complications than in patients without CTTRA, the degree of symptomatic improvement and normalization of natriuretic peptides is lower in these patients, especially in the more advanced stages, where it will be necessary to assess whether the procedure will be futile or not.

![Figure 1. Incidence of MACE](https://academic.oup.com/eurheartj/article-43/Supplement_2/ehac544.2079/6745914)

![Figure 2. NTproBNP values before and after TAVR](https://academic.oup.com/eurheartj/article-43/Supplement_2/ehac544.2079/6745914)