Généreux staging classification in predicting Left Ventricular Reverse Remodeling after intervention for Severe Aortic Valve Regurgitation

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Aims

Severe chronic aortic regurgitation (AR) leads to progressive left ventricular (LV) remodeling and dysfunction, which may be partially reversed after surgical aortic valve replacement (SAVR) or transcatheter aortic valve implantation (TAVI).
This study investigated the prognostic value of the Généreux staging classification in predicting LV reverse remodeling (LVRR) after intervention.

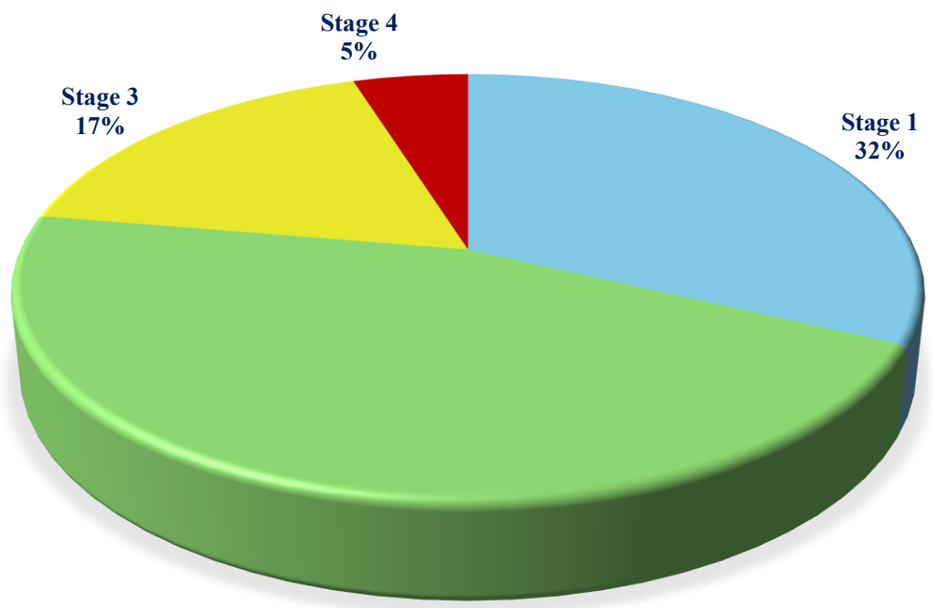
Methods

Retrospective single-center study including 103 patients (29% female) with pure chronic severe AR (77% SAVR, 23% TAVI). Echocardiography was performed pre-procedure, early post-procedure (24-72h), and at 6-month follow-up).

Endpoint

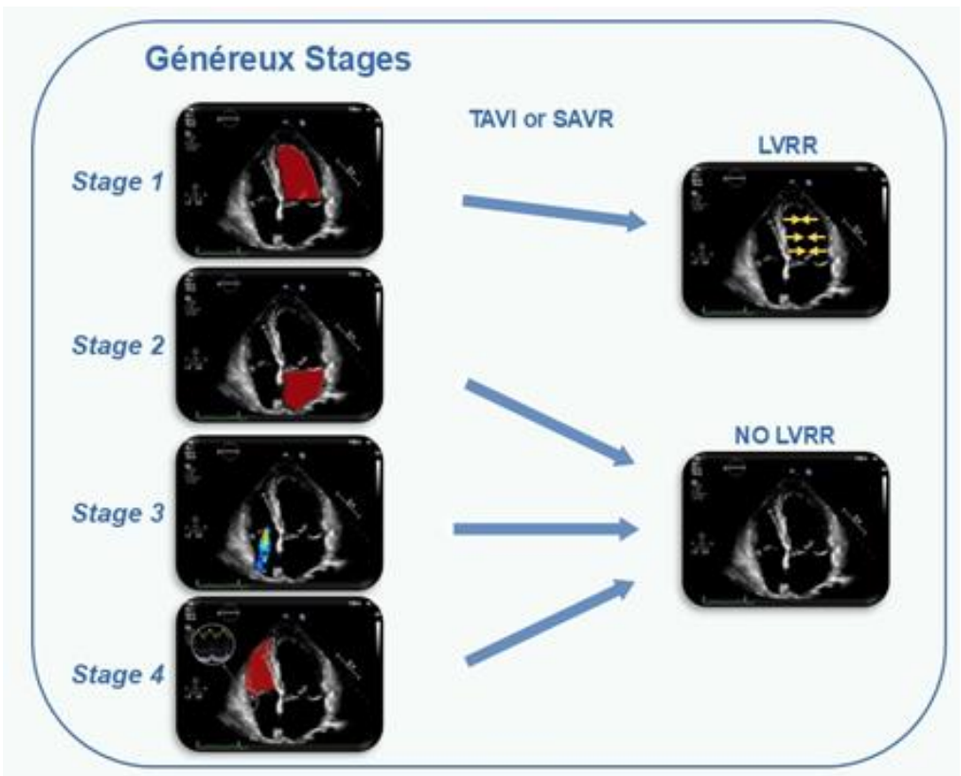
The primary endpoint was the occurrence of LVRR defined as a significant reduction (>15%) in left ventricle end systolic diameter and volume.

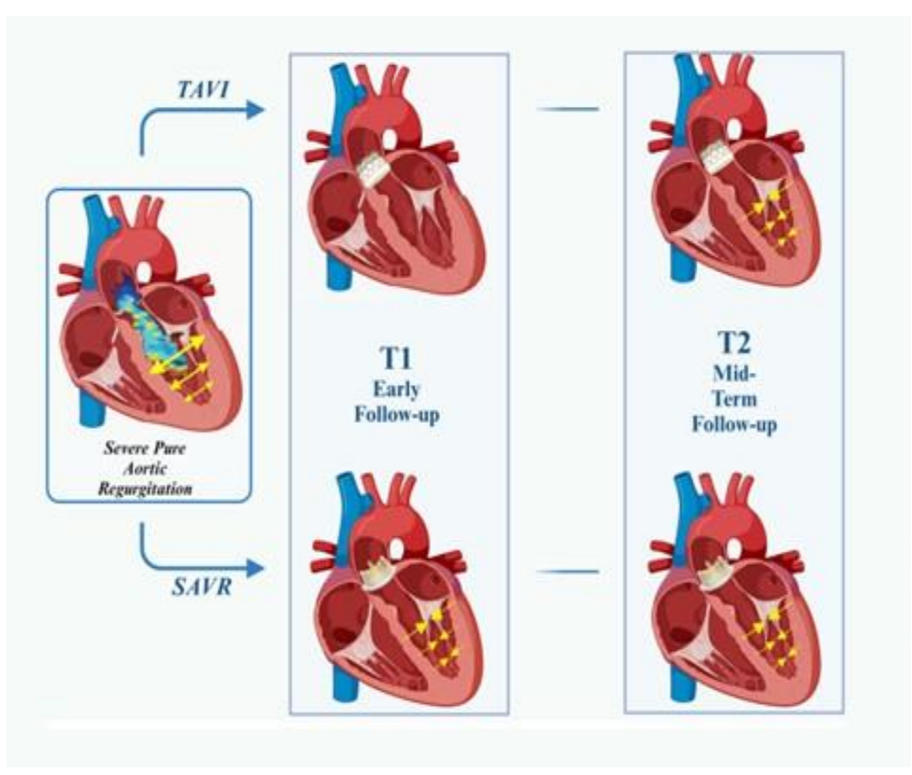
Stages distribution

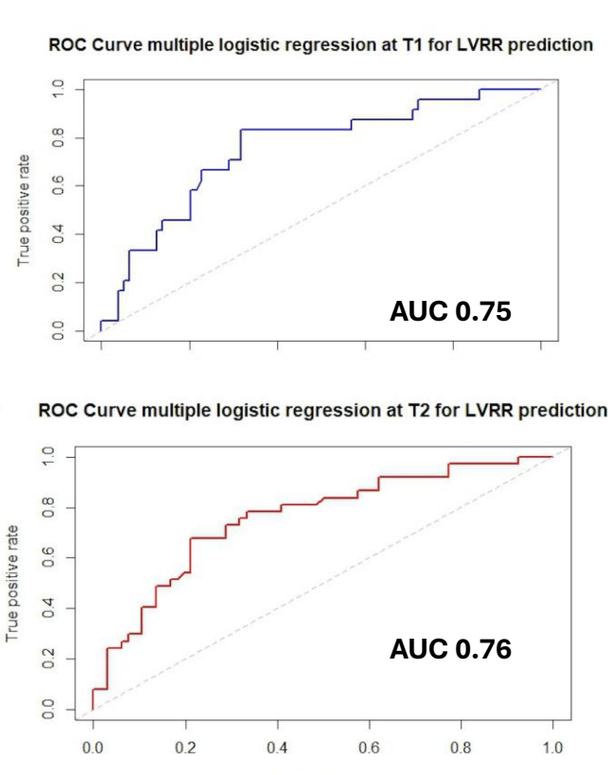


Results

LVRR occurred in 36% of patients, being significantly more frequent in those at Généreux stage 1. Patients in Généreux stages ≥ 2 showed a markedly reduced likelihood of LVRR at both early (OR 0.23; [CI 0.08-0.58; p = 0.002]) and mid-term evaluation (OR 0.26; [CI 0.10-0.60; p = 0.002]). LVRR developed more slowly after TAVI compared to SAVR but was still observed despite more advanced disease and comorbidities in the TAVI group.







Conclusions

The Généreux staging classification emerged as an independent predictor of LVRR after AR correction, outperforming conventional echocardiographic parameters. This finding suggest that early intervention, before progression beyond stage 1, increases the likelihood of LVRR, with potential prognostic implications for both surgical and transcatheter candidates.