

AORTIC REGURGITATION: MULTIMODAL ASSESSMENT OF QUANTIFICATION AND IMPACT

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BACKGROUND

Aortic regurgitation (AR) quantification by echocardiography (TTE) remains sometimes challenging. Cardiovascular magnetic resonance imaging (CMR) is recommended in patients with significant disease and suboptimal TTE images. We aimed to evaluate the adjunct of CMR in the evaluation of AR severity.

METHODS AND RESULTS

From 2009 to 2020, 50 patients (25% of patients with AR) had CMR as a complementary method of quantifying AR, indicated in most of the cases because of the lack of a multiparametric analysis (only one possible method) or because of discrepancies in the different methods. CMR finally found 14% mild AR, 22% moderate AR and 14% severe AR. Severe AR by TTE were re-graded by CMR for 18 patients (36%) as moderate.

There was a moderate correlation between $LVEDV_{TTE}$ and $LVEDV_{CMR}$ ($r=0.57$; $p=0.01$) and $LVESV_{TTE}$ and $LVESV_{CMR}$ ($r=0.47$; $p=0.01$) and no correlation between regurgitant volume by TTE by CMR ($r=0.04$; $p=0.8$).

The study of the concordance between the two AR quantification modalities (TTE and CMR) was weakly significant ($ICC=0.39$, 95% CI 0.003-0.67, $p=0.02$).

CONCLUSION

The regrading of the severity of AR by CMR is not insignificant and should motivate practitioners to systematically evaluate all severe AR in TTE by CMR in order to improve quantification and proceed to an optimal clinical management.

Keywords : Aortic regurgitation ; quantification ; multimodality ; cardiac magnetic resonance

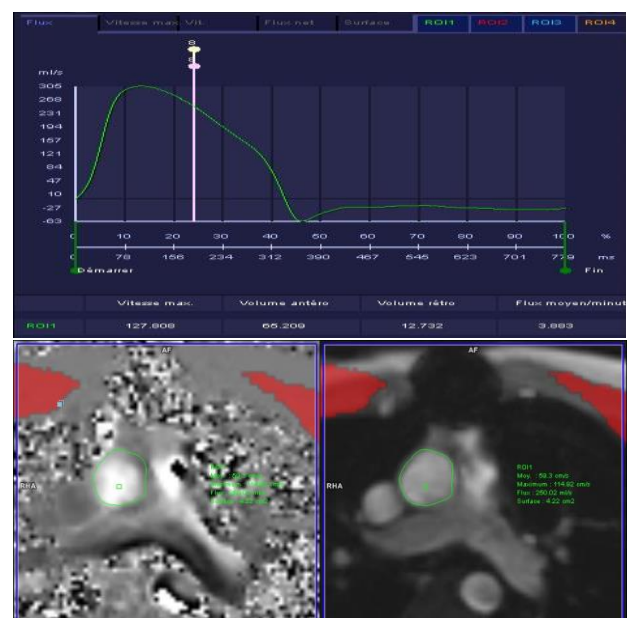


Figure 1: Phase-contrast cine CMR in the transverse plane at the level of the pulmonary artery bifurcation: magnitude and phase images (down). Flow curve in the ascending aorta with holodiastolic retrograde flow (up)

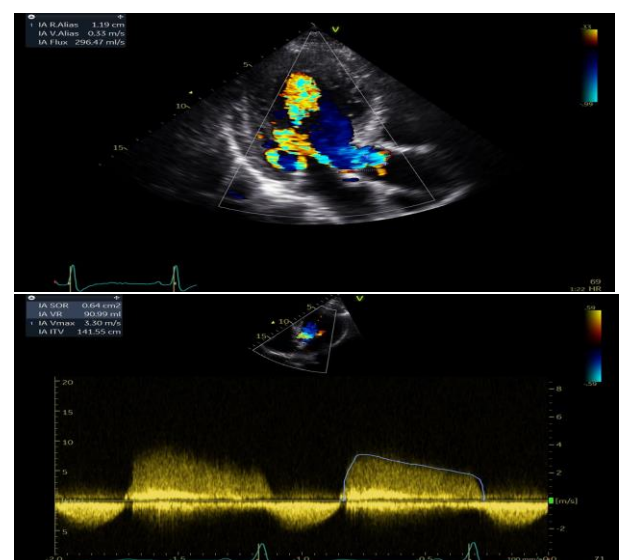


Figure 2 : Regurgitant volume by Proximal Isovelocity Surface Area (PISA) method