Discordance between mitral valve area and mean transmitral pressure gradient in mitral stenosis: is mean gradient marker of the severity or parameter of tolerance in severe mitral stenosis?

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Background Definition of objective criteria to conclude the severity of MS is still important.

Aims (1) to evaluate correlation between the mean transmitral gradient (MTG) and severity of MS in patients with a severe or very severe MS (2) To analyze the different parameters which determine the mean transmitral gradient.

Methods We conducted a prospective study including fifty patients admitted for severe or very severe MS, over a period of one year.

We first studied the correlation between mitral valve area and MTG. Then we separately analyzed two groups of patients: those with a MTG <10mmHg (group 1) and those with a MTG>10mmHg (group2). We performed for each group an univariate correlation between MTG and dyspnea, heart rate, cardiac decompensation, regularity of rhythm, function of right ventricle and systolic pulmonary artery pressure (SPAP).

Results 64% of our patients had a severe MS and 36% had a very severe MS. 52% had a MTG <10mmHg and 48% had a mean gradient>10mmHg; suggesting lack of correlation between the severity of MS and MTG (Pearson coefficient R: –0.137).

Regarding dyspnea, 90% of patients in group 1 had a dyspnea stage II of NYHA and 70% of patients in group 2 had a dyspnea stage III (41%) or IV (29%).

The analytical study of heart rate (HR) and the presence of cardiac decompensation compared with MTG showed a significant correlation. Among the patients in group 1, 96% had a HR between 60 and 100 bpm and no patient was in cardiac decompensation. In group 2, 54% (13 patients) had a HR >100 bpm and 7 of them (53%) were in left heart failure. The study of SPAP in the two groups found a statistically significant correlation between the SPAP and MTG.

Conclusion Mean transmitral gradient is a good indicator of the tolerance of mitral stenosis, but it reflects poorly severity because it depends on several hemodynamic parameters.

The author hereby declares no conflict of interest

Utility of biomarkers in evaluating success of percutaneous mitral valvuloplasty in patients with severe mitral stenosis

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Introduction Percutaneous mitral commissurotomy (PMC) is the gold standard technique for the management of severe rheumatismal mitral stenosis (MS). We investigated the utility of BNP, NT pro-BNP, MR pro-ANP, CD146 and IV at diagnosis.

Methods All 5 biomarkers were measured one day before and one day after the procedure in 43 patients presenting with severe MS (defined as mitral valve area (VA) by planimetry <0.2cm²) and submitted to PMC in 2 large university hospitals in France (CHU Bichat, Paris; CHU Jean Minjoz, Besançon).

Patients were classified as procedural success (VA >1.5cm² or increase in VA >0.5cm²) or failure (VA <1.5cm² or increase in VA <0.5cm²) by echocardiography. The absolute decrease in each biomarker between before and after the procedure was compared for each patient using the paired Student t test.

Results In total, 43 patients were included (80% women, average 63.7 years), of whom 30 (70%) were judged to have a successful procedure by echocardiography; 11 (25%) were classed as procedural failure, and 2 (5%) had a major complication (1 mitral insufficiency requiring surgery, 1 tamponade). Among the 30 patients with procedural success, there was a significant decrease in MR pro-ANP (–43±105, p=0.02) and CD146 (–4±105, p=0.03). There was no significant decrease in patients classed as procedural failures. There was no significant decrease in BNP, NT pro-BNP or stT2 in patients with either successful or failed procedure.

Conclusion There is a significant decrease in MR pro-ANP and CD146 after successful PMC. The difference is more pronounced in younger patients and in those in sinus rhythm. These two biomarkers could be of use in evaluating the immediate success of PMC.

The author hereby declares no conflict of interest

Paravalvular aortic regurgitations with SAPIEN 3 prosthesis least seen with balloon-expandable TAVR

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Background Paravalvular aortic regurgitation (PAR) after TAVR has been associated with increased mortality. The Sapien 3 device (Edwards Life-sciences) is different than the prior devices released by the same manufacturer

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