P127. New Prognostic Markers in Patients after Mitral Valve Replacement: Role of Metalloproteinases

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Objective: Matrix metalloproteinases (MMPs) are zinc-dependent endopeptidases involved in extra-cellular matrix remodelling, associated with both physiological and pathological processes of several human tissues and systems, such as vascular system. In particular, it is well known their involvement in regulating cardiac remodelling. A lot of studies underlined the association between MMPs in mitral valve (MV) disease. Thus, the determinants and prognostic value of MMPs after MV surgery are unknown.
Materials and Methods: We enrolled 60 patients (mean age mean age 65± 13 years) underwent isolated mitral valve replacement (MVR) for rheumatic disease. Informed consent was obtained from all cases. All subjects underwent a complete medical history, comprehensive physical exam, electrocardiogram and echocardiogram. At the same time blood samples had been collected for genetic analysis to examine the role of single nucleotide polymorphisms (SNPs) of MMP-9 (NM-004985), MMP-2 (NM-001121363.1) genes as prognostic markers after MVR.
Results: Patients with high blood level of MMP-2 and MMP-9, at the echocardiography showed higher left atrium diameter (45.8± 12.1 mm vs 32.1± 10.6 mm, p-value= 0.006), higher left ventricular end systolic (38.2± 8.3 mm vs 36.0± 6.9 mm, p-value= 0.044) and left ventricular end diastolic diameter (96.8± 33.1 mm vs 89.3± 23.5 mm, p-value= 0.044), higher LV volume/mass and E/A ratio. At the same time in these patients we assisted to progressive increasing of tricuspid regurgitation (89.9% vs 26.7%, p-value= 0.002) and pulmonary hypertension (52.2 ± 14.8 mmHg vs 30.6 ± 5 mmHg, p-value= 0.001).
Conclusions: Excess activity of MMPs exacerbated cardiac dysfunction after MVR, leading to non-uniform ECM remodelling. Patients with high genetic risk profile need to be treated before and after operation with high dose of ACE–inhibitors than patient with low risk.

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