Aortic, mitral and tricuspid valve transcatheter therapy in patient with severe chronic heart failure

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Introduction: The objective of this case is to present a novel approach in percutaneous treatment of complex valvular heart disease in patient disqualified from cardiac surgery.

Case Description: A 59 year-old-man with a history coronary heart disease, myocardial infarctions (in 1993, 2011), percutaneous right coronary angioplasty (2011,2012), chronic kidney disease, persistent atrial flutter, Hodgkin’s lymphoma treated with radiotherapy and chemotherapy, was admitted to hospital due to congestive heart failure in NYHA class IV, despite optimal, maximal tolerated pharmacological treatment (furosemide 40 mg tid, torasemide 20 mg qd, bisoprolol 5 mg qd, perindopril 5 mg qd, spironolactone 25 mg qd, acetylsalicylic acid 75 mg qd, atorvastatin 40 mg qd)

Physical examination showed: BMI tachycardia 110/sec, blood pressure 95/68 mmHG, systolic murmur grade 5/6 best heard at the apex, moderate leg oedema. Chest auscultation revealed crepitations.

Echocardiography revealed severe, functional mitral (MR) - 4+(VC 8/20 mm) and tricuspid (TR) regurgitation (4+); combined aortic valve disease (moderate stenosis (SA), mild regurgitation (AR) - SA max. grad. 39/23mmHg, valve area -1.3-1.4 cm2, LV end diastolic diameter (LVEDD)/LV end-systolic diameter (LVESD) 57/44 mm, LV ejection fraction 48%, both atrium enlargement (left atrium 38 cm2, right atrium 35 cm2).

Angiography didn’t show significant changes in coronary arteries.

Because of high surgical risk (Euroscore II 9.14%, STS 7.29%) and porcelain aorta confirmed in CT scan Heart Team disqualified patient from cardiac surgery (mitral and aortic valve replacement and tricuspid valve annuloplasty). Afterward he was qualified to complex, percutaneous treatment – TAVI (trans-aortic valve implantation) in first stage, and transcatheter Mitraclip and Triclip implantation in second stage.

The Portico transcatheter aortic valve (29mm) was implanted – max. grad. was 11 mmHg, residual small paravalvular leak was noted.

Two weeks later transcatheter Mitraclip and Triclip implantation was performed and significant reduction of both MR (2+/3+) and TR (2+) was observed.

Gradually after percutaneous treatment dyspnoea improved to class NYHA I/II and one month later patient was discharged to home.

Discussion: Percutaneous treatment of valvular heart diseases becomes a promising alternative for patients disqualified from cardiac surgery.