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Sellapperuma T.P., Saravanabavaan K.

TRICUSPID VALVE BIOPROSTHESIS: PATENCY IN A CHALLENGING CASE OF COMPLICATED FOLLOW-UP

Tutor: PhD, associate professor Maroz-Vadalazhskaya N.N.
Department of Internal Diseases, Cardiology and Rheumatology with a Course of Advanced Training and Retraining
Belarusian State Medical University, Minsk

Relevance. Bioprosthetic valves show favorable hemodynamic characteristics, but they still have a shorter lifespan than mechanical valves. Right heart blood velocities are relatively low compared to the left. In this context, mechanical valves in the tricuspid position are not very useful, but the presence of comorbidities negatively impacts the structure of the leaflets and, therefore, valve patency.

Aim: to discuss the management of patients with tricuspid bioprosthetic valve failure in those with a history of cardiac surgery, a huge abdominal aortic aneurysm and coagulopathy.

Materials and methods. A 75-year-old female with a complex cardiovascular history, including mitral valve replacement, coronary artery bypass grafting (CABG), and ascending aorta repair, was admitted with complaints of exertional dyspnea and fatigue, as well as a known abdominal aortic aneurysm (54.8 mm). Diagnostic evaluation included transthoracic echocardiography, which revealed severe stenosis and moderate regurgitation of a previously implanted tricuspid bioprosthesis. Cardiac CT and myocardial perfusion imaging showed significant structural valve degeneration. Laboratory tests revealed coagulopathy and thrombocytopenia.

Results and their discussion. A complex assessment of patients emphasized the local status (low platelet count, intraoperative bleeding risk, and depletion of blood volume with high volumes of infusion early after surgery, unsuitable anatomy for endovascular abdominal aortic aneurysm stenting, and tricuspid bioprosthesis stenosis). Neither endovascular nor open abdominal aortic surgery was indicated. Transcatheter tricuspid valve-in-valve (ViV) implantation emerged as a potential treatment strategy to improve circulation. Cardiac CT was used to assess annulus size, access route, and device selection. This case also highlighted the importance of pre-procedural imaging in planning ViV interventions and the potential benefits of adjunctive techniques like bioprosthetic valve fracture (BVF) or bioprosthetic valve remodelling (BVR) to improve valve expansion and reduce prosthesis-patient mismatch.

Conclusion. Optimal management of patients with multiple comorbidities and two concurrent vital pathologies, such as a large abdominal aortic aneurysm and tricuspid bioprosthetic valve failure, is not clear. Transcatheter ViV implantation could be a viable method to improve hemodynamics and optimize outcomes in elderly patients with severe structural cardiovascular diseases.