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Risk factors of severe tricuspid regurgitation after left-sided valve surgery

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Background: Tricuspid regurgitation (TR) sometimes deteriorate late after left-sided valve surgery. The recent guidelines recommend tricuspid valve repair at the same time as the left-sided valve surgery. However, little is known about the pathophysiology that leads to severe TR after left-sided valve surgery.

Purpose: To clarify the risk factors of the patients with severe TR after left-sided valve surgery.

Methods: We retrospectively investigated consecutive 526 patients diagnosed as severe TR from January 2004 to December 2018 at our hospital. Clinical background, echocardiographic parameters were evaluated. Demographic information and clinical data (including age, electrocardiograms, type of left-sided valve surgery, underlying valve diseases and history of pacemaker or ICD implantation) were obtained by chart review.

Results: Of the 526 patients with severe TR, 107 patients were after a left-sided valve surgery. Patients developed severe TR at a mean of 14.8 ± 8 years after surgery. The surgical indications were as follows: mitral valve stenosis (74 patients, 69%), mitral valve regurgitation (43 patients, 40%), aortic valve stenosis (37 patients, 35%) and aortic regurgitation (28 patients, 26%), respectively. The mean age at diagnosis of severe TR was 74 ± 10 years and 75 were female (70%). Among those patients, 32 patients (30%) had a tricuspid annuloplasty (TAP) with the first left-sided valve surgery. Ninety-five patients (88%) had atrial fibrillation (AF), 75 patients (70%) were diagnosed as rheumatic heart disease, 64 patients (60%) had pulmonary artery hypertension (PH) and 28 patients (26%) had a permanent pacemaker or ICD implantation.

There were only 12 patients who had severe TR without AF. Eight of 12 patients without AF had PH, and permanent pacemakers were implanted in remaining 4 patients.

Conclusions: Almost all patients with severe TR after left-sided valve surgery present with AF and prevalence of rheumatic heart disease were about 70 percent. These two factors may be one of the important risk factors for severe TR after left-sided valve surgery.

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