Chapter 4

ANESTHESIA MANAGEMENT IN HEART VALVE DISEASES SURGERY

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► Introduction

Adult heart valve diseases are seen as right and left heart valve diseases. Left ventricular diseases are more common and are more hemodynamically significant. The main effect in left valve disease is to prevent blood pumping to the systemic circulation. Therefore, the location and severity of the lesion should be determined and residual ventricular function should be present. Secondary effects on pulmonary, renal and hepatic functions should be determined due to non-pumpable blood. It should also be kept in mind that elderly patients may have coronary artery disease simultaneously.

The rate of heart valve diseases is 0.3-0.7% in the 18-44 age group and 12-13% in the age of 75 years. The most common heart valve disease is mitral regurgitation (MR), while the second is aortic stenosis (AS). Aortic regurgitation (AR) and mitral stenosis (MS) are seen in similar ratios. The main etiology of aortic stenosis, aortic regurgitation and mitral regurgitation is degeneration, while the etiology of mitral stenosis is rheumatic heart disease.

In terms of anesthesia management, valve surgery is a more challenging process than coronary artery surgery. Heart valve diseases lead to pathophysiological changes with severe hemodynamic effects. Heart rhythm and speed, preload, afterload and contractility are the most important variables to be considered. All of the valve lesions are associated with ventricular filling abnormalities. After a certain process, the defect of the valves and the ventricular function are influenced by the progression of pressure and volume load to change the condition of the ventricle.

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Right ventricular performance should be maintained by providing adequate preload during anesthesia. SVR should be kept constant to maintain adequate coronary perfusion pressure. The haemodynamic targets in PS are shown in Table 15.

Valvulotomy and balloon valvuloplasty can be performed surgically. Less invasive percutaneous pulmonary valve implantation can be performed.

Table 15. Hemodynamic Targets in Pulmonic Stenosis

LV Preload	Heart rate	Contractility	SVR	PVR	Things to avoid
↑	N or ↑	Remain Unchanged	Remain Unchanged	↓	Bradycardia

► Pulmonic Regurgitation

It usually develops secondary to pulmonary hypertension caused by different causes. There is anular dilatation. It may also develop due to correction of congenital abnormalities. Other causes include rheumatic fever, endocarditis, trauma and carcinoid syndrome. If there is pulmonary hypertension right ventricular failure reflected in the clinic. Therefore, surgical replacement of the valve should be performed. It should not be forgotten that most patients underwent heart surgery. Therefore, the probability of bleeding and arrhythmia is high.

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