

## Valvular diseases

Valvular diseases are a group of diseases that affect the function of the cardiac valves (especially the mitral and aortic valve; rarely the tricuspid and pulmonary valve) causing stenosis and/or valve insufficiency. Cardiac valves enable blood to pass in only one direction, i.e. from the atriums into the ventricles (the mitral valve between the left atrium and the left ventricle; the tricuspid valve between the right atrium and the right ventricle) and from the ventricles into the main arteries that start from the heart (the aortic valve between the left ventricle and the aorta; the pulmonary valve between the right ventricle and the pulmonary arteries).

Stenosis represents the abnormal narrowing of a valve's orifice that makes blood flow with difficulty through this valve. In the case of atrioventricular valves (mitral and tricuspid), valvular stenosis determines the accumulation of blood upstream the valve (in the lung, in the case of the mitral valve and in the body, in the case of the tricuspid valve) and the insufficient filling up of the ventricles with blood, which that makes them unable to pump blood efficiently.

Insufficiency (regurgitation) means the incomplete or inadequate closing of a valve. Thus, in the case of atrioventricular valve insufficiency (mitral and tricuspid), part of the blood volume that must be pumped by the ventricles with each heartbeat will go back to the atriums, making the pumping function of the heart less efficient, thus exhausting the heart. The insufficiency of the aortic or pulmonary valves makes a good part of the blood pumped by the ventricles with each heartbeat flow through the insufficient valve back into the ventricle. Thus, an insufficient quantity of blood will circulate in the body (in case of aortic insufficiency) or in the lung (in case of pulmonary insufficiency).

In time, both the stenosis and the insufficiency cause the increase of the size of the heart chambers and, in some cases, all the cavities are involved, which can lead to the consecutive affection of the function of the other valves and the occurrence of symptoms and phenomena of cardiac insufficiency and pulmonary hypertension (increased pressure in the arteries that transfer blood to the lungs).

Note that, from the moment the symptoms of valve dysfunction occur, the function of the heart alters progressively in a relatively fast rhythm. It is very important for the treatment of valvular dysfunctions to commence before the occurrence of a major cardiac dysfunction that can be irreversible.

The essential investigations are echocardiography and coronary catheterisation (mandatory for all patients over the age of 40 or for those who come in with cardiovascular risk factors).

In the case of severe valve affection or the occurrence of the symptoms, it is compulsory to undergo surgical treatment with prosthesis implantation/valvoplasty.