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Ventricular Septal Defect

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Definition A ventricular septal defect is a hole in the wall of the heart (septum) that separates the left lower chamber (left ventricle) from the right lower chamber (right ventricle). The hole allows blood to flow from the left ventricle to the right ventricle instead of entering the aorta for distribution throughout the body. Ventricular septal defect is one of a group of heart problems found in newborn babies that are collectively called congenital heart disease.

Description The heart has four chambers. The two lower chambers are called ventricles and are responsible for pumping blood. The right ventricle pumps blood to the lungs and the left ventricle pumps blood throughout the body. If there is a hole in the septum that separates the two ventricles, blood from the left ventricle can enter the right ventricle. This blood recycles through the lungs before returning to the left ventricle. This results in less oxygenated blood reaching the body. If the hole is sufficiently large, the lack of oxygen being delivered to the body can cause severe problems, including heart failure and breathlessness. Approximately 0.7% of all babies have a congenital heart defect. Of these, 20% have a ventricular septal defect.

Causes & Symptoms

- Congenital heart defects are errors in the development of the heart structure.
- They occur early in the life of the embryo.
- There is no known cause of congenital heart defects.
- Genetics does not seem to play a role in ventricular septal defect.
- People with a heart defect do not have an increased chance of passing it on to their children.
- Symptoms result from a reduced amount of oxygen going to the body.
- Symptoms are proportional to the size of the defect. They may appear at any time in the life of the child. In cases where the hole in the septum is small or medium, few or no symptoms may appear and the child may develop normally.
- In cases where the ventricular septal defect is large, the newborn will show all of the following signs: heavy breathing, sweating, and feeding difficulties. Children with this large defect may tire easily.

Diagnosis The physician will listen to the heart with a stethoscope (auscultation) to detect a heart murmur. X rays, electrocardiogram (ECG), and echocardiography can all be used to evaluate the type of ventricular septal defect.

Treatment Most small holes close without treatment. Often, as the child grows, the hole closes or becomes smaller. If the hole is large or fails to close, the child is usually treated with drugs.

Holes that persist and are causing problems in development are corrected by open heart surgery. Usually, surgery is performed after one year of age, but before the child enters school. This allows time for a trial of drug therapy, which could potentially eliminate the need for surgery. The operation is generally safe.

Prognosis Children with small septal defects tend to develop normally and without any effect on their ability to participate in physical activities. Surgery allows children with larger defects to live nearly normal lives.

Key Terms

- Echocardiogram - An image of the heart produced by an instrument that uses sound waves to create image the heart.
- Electrocardiogram - A graph of the heart's beating action.

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