

All about Congenital Heart Defects

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February 14th is marked as the Congenital Heart Defect Awareness Day, in order to remember the ones born with a congenital heart defect (CHD). The term congenital is used for a condition present from birth. Congenital heart defects refer to structural or functional heart diseases, which are present from or at birth. It is one of the most common defects in infants and children. Furthermore, the birth prevalence of significant CHDs has been found to be 8 per 1000 live births.

According to the **National Family Health Survey**, the infant mortality rate (IMR) in India stands at 34 per 1000 live births. About 10 percent of these infant deaths can be attributed to congenital heart defects (CHD) alone. About 1.8 lakh infants are born with CHD in the country every year, a condition which can be detected with timely screening.

A normal heart has 4 chambers, 4 valves, 2 great arteries, 2 vena cavae and 4 pulmonary veins. The blood normally circulates in series in the body: body-heart-lungs-heart-body. When all chambers and valves work correctly, the blood is pumped through the heart, to the lungs for oxygen, back the heart from the lung and out to the body for delivery of oxygen. When valves, chambers, arteries and veins are malformed, this pattern of circulation changes leading to different types of problems.

Congenital heart defects are structural problems of the heart present at birth. It happens during the development of the heart, due to many factors like viral illnesses, malnutrition, some medications and other causes of point mutations like irradiation that the mother may be inadvertently exposed to soon after conception which is often even before the mother is aware that she is pregnant. Defects range in severity from simple problems, such as "holes" between chambers of the heart, to very severe malformations, such as complete absence of one or more chambers or valves.

Types

Most congenital heart problems are structural issues such as holes and leaky valves. For instance:

- **Heart valve defects** - A valve may be too narrow or completely closed so blood has a hard time passing through or

can't pass through at all. Or a valve might not close properly and so the blood leaks backwards.

- **Problems with the heart's walls** - such as those between the chambers (atria and ventricles) of the heart. Holes or passageways between the left and right side of the heart might cause the impure and pure blood to mix together when it shouldn't and lead to increased flow of blood in the lungs .
- **Issues with the heart's muscle** – This can lead to pump failure and eventually heart failure.
- **Bad connections among certain blood vessels:** This can lead to increased flow of blood to the lungs leading to pulmonary hypertension. Over time these defects can lead to irreversible pulmonary hypertension and heart failure.
- **These defects can be broadly divided into acyanotic congenital heart defects (ACHDs) where the child remains pink and cyanotic congenital heart defects (CCHDs) where the child is blue.**

Signs and symptoms

The symptoms of congenital heart disease in infants and children may include any of the following:

- A bluish tint to the skin, fingernails, and lips (doctors call this cyanosis)
- Poor feeding: Suck-rest-suck cycle, where the child suckles for a short while, gets tired easily, rests for a while and again starts to suckle
- Hurried breathing
- Poor weight gain
- Getting frequent lung infections
- Tiring easily during play
- Palpitations (awareness of one's own breathing) in older children
- Murmur heard on auscultation by the doctor

Treatment

Although many of the congenital heart defects (CHDs) can be surgically corrected by timely treatment, others can only be palliated (that is; procedures done to make the symptoms better) or medically managed to control symptoms. It is important to get treatment at the right time to help manage the symptoms and reduce the risk of further problems. Some congenital defects of the heart need more than one procedure or surgery to correct it.

In India, because congenital defects are not covered by insurance many patients do not come forward for treatment, but the general awareness of this disease subset is definitely catching on. There are various organizational and health schemes that are available to help these children in need. Helping these children out would go a long way in reducing the disease burden in society and would also help to lessen the financial burden on the family that would otherwise be incurred by untimely treatment or during the late stages of the illness.

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