

What is A Patent Ductus Arteriosus?

A Patent Ductus Arteriosus (also called PDA) is a blood vessel that connects the Aorta with the Pulmonary Artery. The Ductus Arteriosus is a normal structure before you are born in everyone and normally closes within a week after birth.

The purpose of the Ductus Arteriosus is to provide a way for blood in the fetal circulation to bypass the lungs before the baby is born. As you know, there is no air in the womb to breathe so it is not necessary for blood to be pumped to the lungs when the baby is inside. Once born, blood must go to the lungs in order to pick up oxygen. In some babies this vessel remains open. Babies that are premature have a higher rate of the ductus remaining open. This has to do with the maturity of the pulmonary arteries. In the premature infant we can use a medicine called Indomethacin to cause the ductus to close. If it stays open in premature babies it can cause too much blood to flow to the lungs. Sometimes in full term babies the ductus remains open. This can sometimes be associated with stress, infection or low oxygen level at birth. Many times we don't know why it stays open.

If a baby has a serious heart defect, the PDA can allow the baby to remain somewhat healthy for a short period of time after birth. In fact, sometimes doctors give a medicine called prostaglandin to keep the PDA open until surgery can be performed to correct the problem. If the ductus remains open beyond 6 - 8 months of age then the likelihood of it closing by itself is very slim.

When the ductus remains open in a person it can cause problems in three ways - 1. Heart failure, because if the PDA is large, the heart has to pump a lot of extra blood. This sometimes requires us to give medicine to help the heart beat better. A big PDA sometimes causes the baby not to grow as fast as normal. It can also make them more susceptible to catching colds and pneumonia. 2. Potential damage to the pulmonary arteries from higher pressure. If severe enough this can cause shortness of breath with exercise or even shorten a person's life expectancy. 3. Increased risk of infection. This is because increased turbulence at the area of the PDA roughens the tissue there and makes it more susceptible to infection from bacteria.

We currently recommend that if the Ductus is still open by one year of age it should be closed. One way is by having it surgically ligated. This is seldom done these days. Another way Surgeons are able to close PDAs is using a VATs technique that puts a clip on the outside of the Ductus. This leaves a very small scar. Another method is to place coils in the PDA by means of a catheter. Many cardiologists are now recommending that small PDAs (less than 3mm) can be closed using catheter delivered coils. The advantage to closing a PDA with a catheter delivered coil is that there is no scar on the chest. There is about a 1% chance that the PDA will reopen if it is closed with a coil. There has been in the past some controversy with this procedure because of possible risks such as the devices not staying where they are put. Fortunately if this happens the coils can usually be retrieved and placed properly. Catheterization probably requires a longer period of general anesthesia. There is a slight risk of radiation. These disadvantages have become less of a problem over the years. With a coil or device there is still a foreign body in the blood stream, which may have the potential to be a site of infection. These issues have still not been completely resolved. Some cardiologists feel that very tiny PDAs do not need to be fixed.

If you have any questions please ask one of the doctors.

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