What Is Patent Ductus Arteriosus (PDA)?

The ductus arteriosus is a short blood vessel that connects the two main arteries in the body – the aorta, which carries blood from the heart to the body, and the pulmonary artery, which carries blood to the lungs. Normally the ductus is open when the baby is in the womb and it usually closes in the first few days after birth. PDA (or ‘duct’) refers to the situation in which the ductus remains open (patent) after birth.

Which Babies Are Prone To Develop PDA?

The ductus can remain patent in any baby, but this is much more common in premature babies than in full term babies.

Why Is PDA Important?

If the ductus stays open, it can put extra strain on the heart and the lungs. The heart has to work harder to cope, not only with its normal job of pumping blood around the body, but also with pumping blood through the ductus into the lungs. The lungs and their blood supply, in turn, can become overloaded because of the extra blood being pumped through them. Finally, the extra blood pumped to the lungs results in low blood flow to the organs in the lower part of the body, particularly the bowel and kidneys, which may interfere with their function.

How Do I Know If My Baby Has A PDA?

If your baby was born prematurely, the doctors will check him or her regularly for signs of a PDA. The most common sign is a heart murmur (an extra heart sound). Your baby may also be struggling to wean off the ventilator, CPAP or high flow nasal cannula oxygen support.

What Will Happen If My Baby Has A PDA?

These signs are not specific, and there may be a PDA without the signs being present. Therefore, if the doctors are concerned that your baby has a ‘significant’ PDA they will arrange for a scan of his or her heart (an echocardiogram or ECHO). This will show whether the duct is open and whether or not it is significant.

There is a lot of uncertainty about how to manage PDA. This includes uncertainty in deciding whether the ductus is actually causing your baby any problems and uncertainty in how best to treat a significant ductus. The doctors will consider the balance between possible risks of treatment and possible benefits from closing the ductus, and will discuss the pros and cons of treatment options with you.

How Is PDA Treated?

Reducing the baby's fluids may reduce the strain on the heart and lungs. Using diuretics, (medicines that increase the amount of fluid that the baby passes), may also be used for this purpose.

If these measures do not help, the next line of treatment is to use a medicine called Ibuprofen to try to close the ductus. It is given for several days and acts by blocking some of the chemicals that keep the ductus open. After treatment, the baby may have a repeat ECHO, and if the ductus is still open and significant, repeating the treatment may be considered.
Finally, if medical treatment is not effective and the doctors still think the ductus is causing significant problems, surgical closure of the ductus will be considered. The decision to offer surgery will be made in consultation with the heart specialists at Alder Hey Children’s Hospital which is where the surgery would be done.

**Are There Any Risks Associated With Treatment?**

Restricting the baby’s fluids is not ideal in the long term as this may also restrict the amount of calories and other nutrition necessary for growth. Diuretics can be associated with problems in fluid and salt levels in the body. Ibuprofen can reduce the blood supply to organs such as the kidneys and bowel, affecting the way they function. These effects are usually mild and settle down after treatment is finished but sometimes they may cause the treatment to be stopped. Surgical closure of the ductus is a major procedure for a small sick baby, and while it is almost always effective in closing the duct, it may also be associated with significant risks.

Most babies who need treatment for a PDA do not experience these adverse effects. However, because they can be significant, and because of the uncertainties regarding treatment, the decision and recommendation to treat is not made lightly. A doctor will discuss the issues fully with you before treatment.

**How Can I Find Out More About PDA?**

Your baby's nurses and doctors can give you more information. If the decision is made to recommend surgical closure of the ductus, the heart specialists will discuss this further with you.

This leaflet can be made available in different formats on request. If you would like to make any suggestions or comments about the content of this leaflet, then please contact the Patient Experience Team on 0151 702 4353 or by email at Pals@lwh.nhs.uk