HEART DISEASE & PREGNANCY

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PROSTHETIC VALVES

What is it?

The normal heart has 4 heart valves or flaps. (see The Normal Heart). The valves open and close in order to allow blood to enter and exit the heart. Valves can narrow or leak and, in some cases, new valves may be needed. A prosthetic heart valve is designed to replace the diseased heart valve. There are two basic types of valves that can be used for replacing the diseased native valve, metal (medical term: mechanical) and tissue (medical term: bioprosthetic) valves.

Modern mechanical valves can last indefinitely, however, these valves all require lifelong treatment with blood thinners (medical term: anticoagulants). The most common anticoagulant used is warfarin, however in special situations low molecular weight heparin (LMWH) or intravenous or subcutaneous heparin injection may be recommended.

Tissue heart valves, in contrast, do not require the use of anticoagulant drugs, but have a limited lifespan. This type of valve will need to be replaced, usually after 10 to 15 years.

How safe is it for me to become pregnant?

All women with a prosthetic valve carry an increased risk for complications in pregnancy. The likelihood of complications depends on the valve type and function and also on the need for anticoagulant treatment. Therefore, before proceeding with trying to have a baby every woman with a prosthetic valve should discuss her specific condition with a heart specialist who has expertise in the care of women with heart disease in pregnancy.

If you have a *mechanical heart valve*, you should be on warfarin treatment (or an equivalent anticoagulant). You may have the option while pregnant to remain on warfarin, change to low molecular weight heparin or other heparin drug, or use a combined regime (first trimester low molecular weight heparin, than warfarin for the second and third trimester). When you discuss the issue of anticoagulant treatment during pregnancy with your physician, you should be aware of the following facts:

1. Pregnancy represents a high-risk period for clot formation on your mechanical valve, and subsequent dysfunction of the valve. This may be a life-threatening problem during pregnancy. Treatment with warfarin protects you (your mechanical valve) better during pregnancy, however may have an undesirable effect on your baby. The baby is most likely to be affected if you require more than 5 mg warfarin each day and you use the drug between 6 and 12 weeks of pregnancy.
2. Low molecular weight heparin injection is not as effective as warfarin in protecting you from clot formation on a mechanical valve, but has no harmful effect on your baby.
3. You must understand that in women with a mechanical valve there is no 100% safe blood thinning treatment during pregnancy.
4. Pregnancy in women with mechanical valve and anticoagulation treatment carries extra risk of miscarriage or fetal loss.

If you have a *tissue valve* that functions well you are at very low risk for pregnancy complications. However, if your aortic or mitral tissue valve shows sign of degeneration, and is narrowed you may face the same problems as women with a similar problem affecting a native valve. (see Aortic Stenosis, see Mitral Stenosis).

Every pregnancy carries some risk for complications and this risk may be increased by underlying heart disease. All women have to consider the safety of a pregnancy taking their underlying heart disease into account. Every person's heart condition is different and therefore the safety of pregnancy differs too. Before proceeding with trying to have a baby you should discuss your specific condition and the details of your situation with a heart specialist who knows about the care of women with heart disease in pregnancy.

Issues for the mother

Which forms of birth control are safe?

All forms of birth control (medical term: contraceptives) can be used in women with tissue heart valves that are functioning well. In women with mechanical heart valves, contraceptive pills containing estrogen and progestin should be used with caution or not at all because of the risk of blood clot formation on the heart valve. The older style mechanical valves (medical term: Bjork-Shiley or Starr Edwards valves) are particularly high risk for blood clots and combined oral contraceptive pills should not be used. Contraceptive selection should be discussed with a physician who has an understanding of your underlying heart condition. (see Birth Control)

What are my risks if I become pregnant?

In order to determine your risk during pregnancy, you should see your heart specialist before getting pregnant. You may be required to have additional heart tests such as an echocardiogram or a magnetic resonance imaging scan (MRI scan) to better determine the risks of pregnancy.

The most serious risk relates to the formation of blood clots on the mechanical valve (medical term: thrombosis), as this can be a life threatening condition. The risk may be lessened by careful monitoring of the blood thinner (medical term: anticoagulant) during pregnancy, close follow up of the valve function by echocardiography, and if you report concerning symptoms immediately to your physician.

Women with mechanical heart valves are also at risk for, weakening of the heart muscle (medical term: heart failure) or abnormal heart rhythm problems (medical terms: arrhythmias). If you had heart failure or rhythm problems before pregnancy, your risk for complications during pregnancy is higher. Other cardiac characteristics can have an impact on pregnancy outcomes. (see General Considerations) Symptoms may occur even in the setting of a well-functioning valve, and may be worsened when the mechanical valve is not functioning well.

Some medications are not safe in pregnancy. Do not stop medications without first checking with your doctor, but do check your medications out before pregnancy so you will have a plan. If you did not do that, then do so as soon as you know you are pregnant. The MOTHERISK website is an excellent resource. (http://www.motherisk.org)

Issues for the baby

Your baby may be affected by the blood thinner used during pregnancy. Warfarin is not recommended during the first trimester, due to an increased risk of *birth defects* (medical term for this condition:

warfarin embryopathy). This can be avoided by taking care to perform a pregnancy test immediately if you miss your period and frequently when you are trying to get pregnant. In the case of a positive result, inform your physician as soon as possible. If warfarin is stopped and replaced with low molecular weight heparin or another form of heparin before or at 6 weeks of pregnancy, the risk of birth defects can be avoided.

If you have a congenital heart defect, an ultrasound of the baby's heart (medical term: echocardiogram) can be done at approximately 20 weeks gestation. The ultrasound will detect most major cardiac defects in the developing baby. Minor defects may not be detected until after birth.

Medical care during pregnancy and delivery

Where should I be followed?

Once pregnant, you should be followed at a center that specializes in high-risk pregnancy. Your specialists will determine the frequency of follow-up through your pregnancy.

What can I do and expect during pregnancy?

Your heart specialist will arrange for check up visits during your pregnancy. In addition to your clinic visits, your doctors will likely arrange echocardiograms (ultrasound examinations of your heart) to help determine how the heart valve is working during the pregnancy.

It is important that you pay attention to symptoms during your pregnancy. Notify your doctor if you develop any worrying symptoms such as shortness of breath, chest pain, swelling of the legs, or heart palpitations.

If your symptoms are concerning and you cannot get in touch with your doctor, go to your nearest emergency department. It is helpful to keep a letter from your doctor explaining your condition so that other health care professionals can better help you in an emergency situation.

Labour and delivery should be planned carefully with a team including a specialist in heart disease, an anesthetist, and a high-risk obstetrician.

Both warfarin and heparin are safe for use in women who breastfeed.