Prosthetic Valves and Pregnancy

W S SANTHARAJ[1], D P ATUKORALE[2], R A I EKANAYAKE[3], M JAYATILLEKE[1]

Journal of the Ceylon College of Physicians, 1992, **25**, 43-45

Introduction

There is a growing population of child bearing age who have had valve replacement surgery. These women need to know the risks of pregnancy and the chances of having a healthy baby, but Physicians and Cardiologists cannot yet advise them honestly because of limitations of individual experience. The problems of managing these patients are discussed, with the help of two case reports.

Case I

A twenty four year old lady who has had a mitral valve replacement when she was 15 years old, was admitted to the Institute of Cardiology in June 1989 with 12 weeks pregnancy. Her mitral valve was replaced with Star Edwards prosthetic valve because of mitral stenosis and regurgitation in 1982. She has been taking Warfarin sodium continuosly since 1982. On admission she was asymptomatic, she had atrial fibrillation, the prosthetic valve was functioning well and she had a normal left ventricular function. On admission we discontinued the Warfarin Sodium and started her on Heparin 5000 units subcutaneously twice a day. After a few days of treatment she developed haematomas at the site of injections. We decided to discontinue Heparin and restarted her on Warfarin Sodium knowing the adverse effects of Warfarin on pregnancy because of practical problems in using Heparin. The prothrombin time was maintained twice the control value. She was warded in the Cardiology Unit througout her preganancy and frequent obstetrics assesments were made. She developed labour pains at term. We stopped the Warfarin Sodium and started her on Heparin 1000 unit/hour. She delivered a normal baby weighing 2Kg on 5th of January 1990 by a forceps delivery. The Heparin dose was reduced to 10,000 units/day for next 24 hours. There after Warfarin Sodium was restarted.

Case II

A twenty seven year old lady was admitted with her first pregnancy in 1984. She has had a aortic valve replacement in 1982 in South Africa. It was a tissue valve replacement and she was not on any anticoagulants. She underwent a lower segment cesarian section in 1985 and delivered a normal baby weighing 3.5Kg. Incidentally this patient's blood group was O - ve and baby was B + ve. She was given Rhogham soon after delivery. She became pregnant again in 1988 and went through that pregnancy without any problems and delivered a normal baby by L.S.C.S. Usual antibiotic prophylaxis against endocarditis was given during the delivery.

Discussion

Patients with prosthetic valves need long term anticoagulant therapy. Oral anticogulants unlike Heparin, cross the placenta and may damage the foetus. When oral anticoagulants are used during pregnancy, spontaneous abortion occurs in 50% of pregnancies. Other problems include Warfarin embryopathy in the foetus, and extra uterine haemorrhage. With heparin therapy thrombocytopenia, alopecia and osteoporosis are infrequent complications.

[1] *Senior Registrar*
[2] *Consultant Cardiologist*
[3] *Resident Cardiologist*
Institute of Cardiology, Colombo.

In our first patient when she came to us with 12 weeks pregnancy she had been taking Warfarin Sodium in the first trimester. Although her pregnancy was stable she had a risk of giving birth to a malformed baby. On admission we tried to manage this patient with heparin. There are two ways of giving heparin:-

(1) Heparin can be administrated in full antithromobotic dosage (usually 30,000-40,000 units/day) with the aim of maintaining the activated partial thromboplastin time (APTT) 2 to 3 times of the control value.
(2) Low dose subcutaneous Heparin 5000 units twice or three times a day which can be administrated without laboratory regulation. Although this method does not give total protection against the thrombotic complication of the valve it is more convenient and some times it can be used as a out patient treatment.[1]

Our patient developed haemotomas at the site of subcutaneous injection, and we had to abandon the Heparin therapy.

For patients with a prosthetic valve who are planning pregnancy there are two options either to continue Warfarin and accepting a risk of more than 40% of an unsuccessful pregnancy together with the risk of more than 50% of malformed baby or to change to full anti-thrombotic Heparin administration.[1]

In patients with prosthetic valve oral anticoagulants, treatment is re-established after delivery. The presence of anticoagulant in the breast milk is not a significant problem compared with the higher concentration to which the baby had been exposed in utero. All babies should routinely be given Vitamin K1 at birth.[2]

Our 2nd patient underwent a tissue aortic valve replacement. Anticoagulants are not necessary after tissue valve replacement. Thromboembolism is very rare after free aortic homograft insertion and seems to be rare even after mitral valve replacement despite the frequency of atrial fibrillation.[2]

The advantage of a biological valve in a young woman who may wish to have family is apparent, even though these valve may show less long term durability than the artificial valve.

The subject of family planning should be approached early in patients who are likely to require valve replacment during child bearing age. They should be advised when possible to have their children before valve replacement. Mitral regurgitation and multivalvular disease is less dangerous than pure mitral stenosis in pregnancy because a lesser risk of pulmonary oedema. While mitral valvotomy can be carried out successfully pregnancy should not be delayed when the valve is suitable. Vigorous medical management of a woman who will need valve replacement is still worth while in order to take her through pregnancy before cardiac surgery is undertaken.

While open heart surgery can be a carried out in pregnancy in most institutions, it is not yet as safe for the baby as a closed procedure, so that deferral of open heart surgery and choice of closed rather than open mitral vavotomy seems to be wise at the present time.

Summary

A patient with prosthetic valve when she become pregnant has to overcome several problems. High incidence of abortion and foetal malformation occur with oral anticoagulants. Tissue valve replacements usually don't need any anticoagulants but durability of these valves are limited. If possible patient should be advised to complete her family before valve replacements. Open heart surgery should be avoided as far as possible during pregnancy.

REFERENCES

1. Hilroy O Neil and Blake, Problems in management of patients with artificial valve during pregnancy, *British, Journal of Obsterrics and Gynaecology* (1982) **89**; 940-43.
2. Celia Oakley and P. Doherty, *British Heart Journal*, (1976) **38**; 1140-1148.
3. Ibama - Perez, *The American Journal of Medicine*, (1976) **61** 511.