Epilepsy, Future Pregnancy and Choice of Valve Prosthesis

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Citation

Abstract
Thromboembolism and bleeding rate are higher with mechanical prosthetic heart valves. In this study we discussed the choice of valve prosthesis in an epileptic case with future pregnancy.

INTRODUCTION
Indications for specific valve types, whether they be mechanical or bioprosthetic, have been rigorously defined in recent years. Candidates for bioprosthetic valves would be: older patients, patients who are noncompliant or have contraindications to anticoagulation, patients in normal sinus rhythm, and young females desirous of future pregnancy (1). Bioprostheses in heart surgery have been investigated in recent years to reduce the long-term anticoagulant administration associated with mechanical devices. Positive results have been achieved, particularly in elderly patients who have a supposed delayed fibrocalcification and reduced life expectancy (2).

CASE PRESENTATION
Our case was a 37-year-old female. She was suffering from dyspnea and palpitation that were worsening with time for 2 years. Investigations for these symptoms revealed severe mitral insufficiency and she was then referred to our clinic for operation. Her transthoracic echocardiography confirmed severe mitral regurgitation finding a dilated left atrium (d: 65 mm) and an increased pulmonary arterial pressure as 35 mm Hg, additionally. Thereafter, cardiac catheterization showed severe mitral insufficiency as the dominant pathology (Figure 1).

Her past medical history was significant for epilepsy for 15 years that was controlled by phenytoin sodium regimen. Moreover, she was willing to have a baby in the near future. Department of Neurology was also consulted preoperatively.

She went under surgery. She was operated under endotracheal general anesthesia and in supine position. Following a median sternotomy, pericardium was opened longitudinally. After heparinization, extra-corporeal circulation was established between the venae cavae and the ascending aorta. A cross clamp was placed on aorta and by antegrade intermittent isothermic blood cardioplegia from aortic root, cardiac arrest was established. Hypothermia was
moderate (28°C). A vent was placed via the right superior pulmonary vein. Standard left atriotomy was made. The valvular apparatus was then mobilized as an entire unit with a nerve hook in order to assess tissue flexibility and to identify leaflet restriction. Anterior leaflet was thickened and fibrotic and cords were shortened. Posterior leaflet was completely thickened. Cords of posterior leaflets were also thickened and shortened. For these reasons, mitral valve reconstruction was impossible (Figure 2).

Figure 2

Native valve was resected. Mitral valve replacement (29M no St Jude Tissue Valve – A10178194) was performed in a standard manner. Valve competence and closure were excellent (Figure 3).

Figure 3

She didn’t require inotropic support during weaning from cardiopulmonary bypass and early postoperative period. The hospital stay was 7 days. The functional capacity of our patient improved dramatically and she was in NYHA functional class I. Postoperatively on the day of discharge and after 3 months an echocardiographic investigation was revealed no dysfunction for the replaced bioprosthetic mitral valve.

DISCUSSION

Pregnancy due to its physiological changes is a procoagulant state. The rate of cardiac valve prosthesis thrombosis, deep venous thrombosis and pulmonary embolism are all increased (3). Pregnant patients with mechanical valves require anticoagulation. The risk of bleeding and embryopathy associated with oral anticoagulation must be weighed against the risk of valve thrombosis (4).

In the study of Mykén, seventeen-year data confirm the low incidence of valve-related complications and improved valve durability reported at the 15-year follow up after both AVR and MVR using Biocor porcine bioprostheses (2).

When compared with tissue valves, the most important disadvantage of mechanical valves is their thrombogenicity with the need for life-long anticoagulation therapy (5). Valve prosthesis-patient mismatch is clinically important when it is severe and in selected patients when it is moderate. Bioprostheses have a low rate of structural valve deterioration in the older patient and, thus, are the prosthetic heart valves of choice for AVR in patients > or = 60 to 65 years of age and for MVR in patients > or = 65 to 70 years of age. In individual patients there may be exceptions to these general rules (6).

In an other study of Mykén et al.; they aimed to review the 15-year results of aortic (AVR) and mitral (MVR) valve replacement with the St. Jude Medical Biocor porcine prosthesis, in order to investigate long-term survival and valve-related complications. The optimal valve substitute remains to be found, this long-term study of a third-generation bioprosthesis showed a low incidence of valve-related complications, especially of valve deterioration. This type of bioprosthesis appears to be more durable than valves of previous generations (7).

The late outcome of heart valve replacement can be determined by subjective improvement, improvement of functional capacity and central hemodynamics, normalization of impaired ventricular function and by the frequency of complications related to or induced by the prostheses (5).
References

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