

Aortic Valve Replacement by mechanical prosthesis in Children: a positive Long-Term Outcome including for patients with an infantile Marfan syndrome

*Moreau de Bellaing A., Raïsky O., Haydar A., Bonnet D., Bajolle F.
Hôpital Necker-Enfants-Malades, Paris, France*

Introduction. Aortic mechanical valve replacement (AVR) in children, especially children with infantile Marfan syndrome (IMS), has been associated with a high complication rate. Long-term prognosis of IMS, a rare congenital inheritable connective tissue disorder, is generally perceived as poor.

Methods. A retrospective review of clinical and surgical records of patients undergoing AVR in Necker hospital between 2000 and 2017, was performed. 55 children (41 boys and 14 girls) underwent 57 AVR procedures at a median age of 12.4 years (range, 1.2 to 17.4 years) and a median weight of 40 kg (range, 7.5 to 86 kg). 11 patients (20%) had a MS diagnosed in early childhood. Median follow-up for operative survivors was 4.5 years (range, 1 month to 16 years, 95% complete).

Results. Thirty-day mortality was 4%(n=2). One-year, five-year and ten-year patient survival was respectively 96%, 93% and 93%. Among survivors, the 10-year freedom from reoperation was 87%. Complications after AVR included heart block requiring pacemaker (5%), bleeding (4%), stroke (11%) and endocarditis (4%). There was no prosthesis thrombosis. All the patients with an IMS had an aortic root dilatation and underwent a Bentall procedure at a median age younger than children without connective tissue disorder (9.5 years, $p = 0.008$). Eight of these (73%) had previous aortic root replacement with valve sparing technique. Two children had an associated severe mitral prolapse and underwent concomitant mitral valve replacement. All patients with IMS survived.

Conclusions. Long-term results after AVR are excellent. Complications associated with surgery and long-term anticoagulation are rare. This study gives confidence in mechanical prosthesis including for children with an infantile MS.