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Decellularized fresh pulmonary homografts for reconstruction of the right ventricular outflow tract: Initial experience with the ESPOIR valve

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Objectives

Reconstruction of the right ventricular outflow tract (RVOT) constitutes an essential part of the correction of a large group of congenital cardiac anomalies.

Herein we report the initial experience with the use of decellularized fresh pulmonary homografts used for reconstruction of the RVOT in the scope of a multi-centric European trial (ESPOIR).

Methods

17 patients with a median age and weight of 11(2-59) years and 36(11-100) kg undergoing a Ross Procedure (10) or a pulmonary valve replacement (7) received the ESPOIR valve. Two patients with truncal and pulmonary valve disease underwent replacement of both these valves. Patients underwent a preoperative MRI and tests to document haemolysis. Most of the patients had 1 to 3 prior cardiac operations. Median size of ESPOIR valve was 24(14-30)mm and the median duration from harvest to implantation was 1.9(1.3-4.4)months. The ESPOIR valved conduit was sutured distally and proximally using continuous suture technique. Postoperatively, acetyl salicylic acid was given for 3 months after removal of the drainages.

Results

One 60 year old patient undergoing triple valve replacement along with maze procedure died postoperatively; the death was unrelated to the ESPOIR valve. All the remaining patients are alive with well-functioning ESPOIR valve at a median follow-up of 6(0-19)months. Mean gradient across the valves was a median of 2.5(1 -20) mm Hg and 9 patients had mild regurgitation. The handling of the ESPOIR valves was very good and the conduit was well accepted by the body without clinical signs of haemolysis. Two patients had mild temperature in the first postoperative days which resolved spontaneously.

Conclusion

Initial experience with the use of the ESPOIR valve is satisfying. Longer follow-up is necessary to determine whether decellularization leads to better long term outcome compared to its existing Peers.