

New generation decellularized biological valve as pulmonic conduit in congenital heart surgery

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Objective: Establishment of right ventricle to pulmonary continuity with a valve is indispensable in correction of many complex cardiac pathologies. In an attempt to create an ideal conduit tissue engineers developed decellularized biologic valved conduits. We report our surgical experience with last generation completely decellularized biological valved conduit in a heterogeneous group of pediatric patients .

Methods: Since October 2010, 21 patients (median age 60 months; range:7 months to 29 years; median weight 15 kg; range 7 to 71 kg) with different diagnosis had implantation of decellularized valved conduit in our hospital. 15 patients had Rastelli type operation, and in rest of the group; 2 patients undergone Ross procedure, 2 patients had total correction of VSD and pulmonary atresia, 1 patient had Truncus arteriosus repair and there was only one patient who had previously undergone right ventricle outflow tract conduit replacement.

Results: The implanted valve sizes ranged from 15 to 21 mm (median size was 17mm). No mortality occurred at perioperative or during follow up period (mean 8,5 ±4,8 months). The only valve related morbidity was revision for excessive drainage in one patient, the other 20 patients had no valve related problems during their follow up. In one patient who had pulmonary branch arterioplasty during corrective surgery, postoperative echocardiography showed right ventricular outflow gradient more than 20 mmHg but it was measured at distal segments of pulmonary bed and valve function was normal.

Conclusion: The short term good results of this new generation valve is encouraging for the future. We believe that this conduit can be a good alternative for homografts in pulmonic position with its resistance to degeneration and can be more advantageous because of its growth potential especially in small age population.