

Monocusp valve placement during complete repair of tetralogy of Fallot with transannular patch does not have benefits at 1-year follow-up

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A monocusp valve (MV) may be placed in the right ventricular outflow tract (RVOT) during complete repair of tetralogy of Fallot (TOF) using a transannular patch (TAP). There is limited data regarding outcomes of those with a MV and no data directly comparing those with and without a MV. This study compares 1-year follow-up data of children having undergone complete repair of TOF utilizing TAP with and without MV.

Children who underwent complete repair of TOF using TAP at the Children's Hospital of Wisconsin between the years 2000 and 2016 were identified. Clinical and surgical data was collected. Echocardiographic data from the preoperative period, at time of discharge, and 12 months after repair was collected. Clinical, surgical, and echocardiographic data was then compared between those with and without monocusp.

A total of 48 patients were included in this analysis, 30 (63%) with MV. There was no difference in preoperative characteristics such as gender, syndrome, ductal dependence, cyanotic spells, or beta blockade. Peak RVOT gradient was greater in those with a MV (82.1 vs 67.0 mmHg, $p=0.007$) although no difference was noted in preoperative PI. MV was surgeon dependent with one surgeon placing a MV 11% of the time and another 82% of the time. Bypass time, cross clamp time, extubation in the operating room, and chest closure did not differ. Duration of mechanical ventilation, chest tube drainage, or postoperative hospital stay did not differ.

Those without a MV were more likely to have moderate or severe PI at the time of discharge (83% vs 23%, $p=0.001$) although there was no difference in peak RVOT gradient. At 1 year follow-up there was no longer a difference in PI and there was no difference in peak RVOT gradient. Need for reintervention and mortality at 1 year were also similar.

MV does not decrease PI, reintervention, or mortality at 1 year follow-up. A larger study with longer follow-up is warranted.