

PW1-12

Branch pulmonary artery flow reversal: Does it correlate with valve leak?

*Gist K., Panwar S., Landeck B., Mitchell M.
The Children's Hospital
Denver, Colorado
United States*

Background: The Contegra conduit is used for right ventricular outflow tract (RVOT) reconstruction in a variety of congenital cardiac diseases. We hypothesized that flow reversal in the branch pulmonary arteries may be secondary to compliance and increased capacitance in the Contegra conduit compared to normal human anatomy in young children, and not necessarily indicative of severe valvar insufficiency.

Methods: Retrospective chart review was performed for all patients less than 9 months of age who underwent RVOT reconstruction utilizing the Contegra conduit between March 2004 and August 2009 at The Children's Hospital in Denver, Colorado. Conduit position was classified as either anatomic or extra-anatomic. Post-operative echocardiograms were evaluated for presence of conduit insufficiency and branch pulmonary artery flow reversal.

Results: There were 152 patients who underwent right ventricular outflow tract reconstruction using the Contegra conduit between March 2004 and August 2009. Of the total number of patients, 59 were less than or equal to 9 months. Mean age was 83 days +/- 84.72, and mean weight was 4.44kg +/- 1.16kg. Thirty-seven patients were male. Twenty-six patients had the conduit implanted in an anatomic position, and the remaining 33 were extra-anatomic. Two patients had previously had a conduit, one being a Homograft and the other a Contegra. The 30 day mortality was 5% (3 patients). Post operative echocardiograms were available for review by a single cardiologist for 55 patients. Branch pulmonary artery flow reversal was seen in twenty echocardiograms, of which 10 had less than mild conduit insufficiency.

Conclusion: Flow reversal in the branch pulmonary arteries was not only seen with severe insufficiency of the Contegra valve. Thus, flow reversal by itself should not influence the diagnosis of conduit insufficiency or the indications for replacement. This phenomenon may be unique to younger patients secondary to the relative size of the conduit in relation to the patient, and capacitance of the conduit.