Improved Fetal Detection of Simple Transposition of the Great Arteries Results in Better Clinical and Surgical Outcomes

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Introduction: The reported antenatal detection rate of transposition of the great arteries (TGA) is notoriously low (25%). Therefore the influence of antenatal detection on the surgical outcomes of TGA could not be accurately determined. The current inclusion of outflow tract view to the routine 20 week foetal anomaly screening protocols may improve the detection rate of TGA resulting in better neonatal and surgical outcomes.

Methods: All children who were diagnosed with simple TGA (with or without VSD, but no other cardiac abnormality) at UHW between 1998 and 2013 were included in this study. The antenatal-postnatal diagnosis, clinical and surgical data were retrospectively reviewed; the fetal, neonatal and surgical outcomes were evaluated.

Results: There were 79 patients; 58 diagnosed postnatally, 21 antenatally. 36 had isolated TGA and 43 had an additional VSD. Antenatal detection rate improved from 0% to 75% in the last 7 years. All patients in antenatal detected group were delivered at term, but there were eight preterm deliveries were in postnatal group. 40% of cases diagnosed postnatal were unwell at presentation; 15% required inotropes and 80% ventilatory support. The need for prostin infusion following delivery was 68% and balloon septostomy was required in 60% of the cases before surgery. Major postoperative complications were more common in postnatally diagnosed patients (26% vs 10%, p<0.01). One death was recorded in the antenatal group but all other 8 deaths were in the postnatal group. Preoperative mortality rate was 10% and operative mortality was 1.2% with no death being recorded after 2008 which coincided with the adoption of outflow tract view into the routine cardiac anomaly screening planes in Wales.

Conclusions: Inclusion of outflow tract view represents a major leap in antenatal detection of TGA. Increased antenatal detection rates of TGA has resulted in better cardiovascular status at presentation, more favourable clinical outcomes with lower postoperative complications and virtually eliminated mortality rates in our cohort.