The Impact of Coronary Anomalies Associated with Tetralogy of Fallot: A Review of the Pediatric Cardiac Care Consortium (PCCC)

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Objectives: Anomalies of the coronary arteries associated with tetralogy of Fallot (TOF) is relatively common. This study was initiated to examine the mortality of this association over a 25 year period. The most common anatomy is the anterior descending coronary artery originating from the right coronary artery. The incidence of these coronary anomalies and the operative risks associated with repair of TOF has not been adequately defined in a non-autopsy clinical series. Utilizing the PCCC, a large, multi-center congenital cardiac database, we attempt to define the incidence and mortality associated with these anomalies.

Methods: Utilizing the PCCC we retrospectively identified patients with diagnosis of TOF who also had an associated coronary anomaly. Forty-nine North American centers contributed patients between the years of 1982-2007.

Results: Of the 9,931 patients with the diagnosis of TOF, 503 (5.1%) had an associated coronary anomaly with a mortality of 4.8% (n=24). 7,101 patients had an operative code for TOF of which 364 had an associated coronary anomaly (5.1%) with a mortality of 8.8% (n=32). Mortality of TOF repair with a concomitant coronary anomaly have not decreased significantly over the period studied; 11.9% in 1982-89, 9.4% in 1990-99, and 6.8% in 2000-07. Of the TOF operative patients without an associated cardiac anomaly (n=6,737), the mortality was 5.0% (8.8% v. 5.0%, p=0.0013). 2.8% of the entire cohort had the anterior descending from the right coronary artery.

Conclusions: The occurrence of coronary anomalies associated with TOF is common. Mortality following repair of TOF with an associated coronary anomaly is significantly different than TOF repair without an associated coronary anomaly.