1. A COMPARATIVE STUDY ON THE OPTIMAL SHUNT TYPES FOR SURGICAL MANAGEMENT OF TOF

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Introduction. Tetralogy of Fallot (TOF) is a congenital cardiac anomaly with intricate structural aberrations. Surgical approaches for TOF range from immediate repair to staged methodology. Blalock et al. pioneered the Blalock-Taussig shunt, which reduced cyanosis in patients with pulmonary stenosis or atresia. Modifications led to the emergence of the modified Blalock-Taussig shunt (mBTS), which uses a Gore-Tex tube. Contemporary formulations like the Waterston shunt and Potts shunt establish connections between the ascending aorta and the main/right pulmonary artery.

Aim of study. The study compares various shunts and their techniques to determine the superior option and explain the rationales behind their differences.

Methods and materials. The study focused on articles from 2000-2023. The study excluded non-English language literature, meta-analysis, systematic reviews, and abstracts. The search was filtered with articles based on the keywords “Tetralogy of Fallot,” “Surgical treatment of tetralogy of Fallot,” “Shunts in TOF,” etc. from PUBMED, Embase and Google scholar.

Results. This systematic review of 11 studies on shunt interventions in pediatric Tetralogy of Fallot patients undergoing palliative or staged repair revealed distinct outcomes for each type. The Modified Blalock-Taussig (BT) Shunt was the most prominent, with 10 studies focusing on it (90.9%). It was found to be favorable for symptomatic Tetralogy of Fallot (TOF) patients with hypercyanotic spells, ductal dependent pulmonary circulation, and weight <4 kg. However, it was deemed ineligible for TOF/PA with patent ductus arteriosus and TOF with severe right ventricular outflow tract obstruction (RVOTO) due to documented post-procedure deaths. The study highlighted advantages such as avoidance of circulatory arrest, low mortality, low morbidity, and a low incidence of reoperation after complete repair when management strategies catering to patient size, systemic arterial saturation, and anatomy were adopted. However, complications such as over circulation, shunt thrombosis, seroma, and pseudoaneurysm were noted.

Conclusion. The primary choice for shunt interventions in pediatric Tetralogy of Fallot patients was the Modified Blalock-Taussig Shunt, demonstrating positive outcomes. However, the Classic BT Shunt and central shunt showed less significance, with the Modified BT Shunt showing suitability but associated complications, and the Classic BT Shunt offering personalized management benefits.