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RIGHT VENTRICULAR OUTFLOW TRACT STENTING; WHAT DO WE KNOW?

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Traditionally, the management of infants with Fallot's tetralogy (TOF) with excessively reduced pulmonary flow (Nakata index <100 mm^2/m^2, pulmonary valve Z-score<−5) and cyanosis has been palliation until complete repair is feasible. Palliation involves a procedure that augments pulmonary flow, either by surgery: MBT shunt or limited RVOT patch or by catheter: PDA stent, balloon RVOT, RVOT stent. The problems of PDA stent are the stenosis of pulmonary arteries and the technical approach in tortuous PDA. While, RVOT stent has a physiological haemodynamic result with equal growth of PA. So, RVOT stent is indicated in symptomatic cyanotic neonate/infant with small pulmonary arteries, complex anatomical variants of TOF especially with congenital anomalies. The policy is to spare of pulmonary valve annulus in RVOT stenting to avoid transannular patching at the time of complete repair. Angiographic measurements underestimate RVOT length, so most often reliance on ultrasound measurements to select the stent length is preferable. The stent chosen for implantation should be one size up from the measured length and covering the proximal portion of the RVOT is crucial. Use of long sheaths or guide catheters is mandatory to perform repeat side arm test injections prior to stent positioning, to reduce the risk of stent slippage and to avoid damage to the tricuspid valve/conduction system by covering the stiff coronary wire. In AVC/TOF, long sheath is important to find a clean passage from RV-PA and to avoid the chordal attachments of the superior bridging leaflet. In DORV/TOF, RVOT is classically positioned more horizontally and care has to be employed to cover the entire RVOT length. RVOT stenting promotes better pulmonary arterial growth and oxygen saturations compared with MBT in the initial palliation of Fallot-type lesions. Stent implantation provides an effective alternative to palliative surgical enlargement of the right ventricular infundibulum. RVOT stenting in patients with severe Fallot physiology may be a good means to reduce perioperative morbidity and mortality by gradually increasing pulmonary blood flow. It should be considered the first line palliation in patients who are not suitable or considered high risk for one stage complete repair with hypoplastic pulmonary arteries.

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