

Initial outcome of perventricular device closure of ventricular septal defects in children without cardiopulmonary bypass.

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Introduction:

Ventricular septal defects (VSDs) are estimated to account for 20% to 30% of all congenital cardiac malformations and are the commonest CHD excluding Bicuspid aortic valve. Open surgical and percutaneous transcatheter approach are the two well-known methods with their advantages and disadvantages. Off late a new hybrid approach, perventricular closure of VSDs is gaining importance given the benefits it has over both these procedures.

Methods:

We aimed to analyse the success and incidence of acute complications after perventricular device closure of ventricular septal defect (VSD) without cardiopulmonary bypass in children. Children aged less than 18yrs, with isolated VSD, who underwent perventricular device closure of VSD without cardiopulmonary bypass, from September 2017 to November 2018 were included. Inclusion criteria for the study were congestive cardiac failure refractory to medical management, and children who had percutaneous VSD device failure (if deemed suitable after Transthoracic echocardiography, and after on table Transoesophageal echocardiography assessment for device suitability). Children with either of the following criteria were excluded: VSDs with significant aortic prolapse, VSDs with inlet extension and associated lesions requiring open heart surgery.

Results:

A total of 31 children (M: F= 0.93) were included in the study. The median age of the study population was 9 months (IQR 75th, 25th: 25,6). Median weight of the study group was 6.7kg (IQR 75th, 25th: 8.5,5.3). Muscular VSD was the commonest (84%). Mean duration of the procedure was 90±26 min. Median post OP ventilation time was 12 hours (IQR 75,25: 18.5,8.7) and median hospital stay 7 days (IQR 75,25:8,5). There were 3 (9.6%) failures (new onset significant Tricuspid regurgitation, device induced haemolysis and device embolisation to Left pulmonary artery). Post-procedure, new trivial TR and new trivial AR which are haemodynamically not significant were seen in 42% and 3.2% of the cases, respectively. Post-procedure transient RBBB was observed in 1 child.

Conclusion:

Perventricular approach for device closure of VSD is an effective alternative to traditional VSD closures. It has minimal complications with a good success rate.