SAFETY AND EFFICACY AND MIDTERM OUTCOME OF TRANSCATHETER DEVICE CLOSURE OF ATRIAL SEPTAL DEFECT, WEIGHING LESS THAN 15 KG: EXPERIENCE FROM TERTIARY REFERRAL HOSPITAL FROM EASTERN INDIA

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Background:

Transcatheter device closure of ostium secundum atrial septal defect (OS-ASD) is standard of care worldwide. Safety and efficacy are well established among older children and adult population. However, very limited data are available regarding safety, efficacy and outcome in children below 15 kg weight.

Aims & objectives:

Aims and objective of this present study is to discuss about safety, efficacy and outcome of transcatheter device closure of children less than 15kg weight.

Material and method-:

This study retrospective review of all patients weighing less than15 kg who were taken to the catheterization laboratory for elective transcatheter closure of secundum ASD between August 2014 and September 2021. Total 118 patients fulfilled this criterion. Recurrent respiratory tract infection, failure to thrive, syndromic baby was among main indication of device closure. All patients had features of volume overload of right atrium and right ventricles by echocardiography. All procedure had done under conscious sedation and under transthoracic (TTE) and fluoroscopic guidance. No transoesophageal (TEE) echocardiography was done and none were intubated.

Mean procedure time and fluoroscopic time was respectively 40 minutes (20 to 60 minutes) and 5 minutes (2 to 12 minutes). Mean radiation dose was 1304 cGy.cm2. No major complications were documented except some minor.

Result:

Successful device closure was achieved in 118/112 cases (94.9%). Median weight of the patients was 13.5 kg (6.8 to 15 kg), median age of the patient was 48 months (12- 96 months), minimum

weight and the age of the patients was 6.8 kg and 12 months. Median defect size was 16 mm (12mm to 26mm), on table direct PA pressure of 14mmHg (10 to 18 mmHg) was documented. Device/ defect ratio is considerably low 1.08 but device/ weight ratio was high, mean of 1.4 (1.2 to 2).

Among 118 cases, 6 cases (5.05%) send for surgical closure after device closure failure. Device embolization was not documented in this present study. Among 118/ 6 (5.08%) unsuccessful device closure, in 2 occasions devices were intentionally taken out as devices were touching mitral valve and hampering valve closure and causing new onset mitral regurgitation.

Conclusions:

Transcatheter ASD device closure in small children has got high procedural success rate. This present study did not document any major complication. However, it has got potential procedure related complications and may have delayed complication if large size metal implant is put in a relatively smaller heart. In small, asymptomatic patients, deferral of closure until the historically established timeline of around 4 to 5 years of age is recommended. Before considering device closure in this subset, indications of closure must be evaluated in case-to-case basis and exclusion of other possible underlying confounding factor for growth failure, recurrent LRI must be consider. Long term follow up is necessary to comment upon safety of device closure among this group of patients.