TRANSCATHETER DEVICE CLOSURE OF DOUBLY COMMITTED VENTRICULAR SEPTAL DEFECTS

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BACKGROUND

There remains international debate regarding efficacy and safety of transcatheter closure of doubly committed VSDs (DCVSD).

OBJECTIVE

This study reports a 5 year single centre experience with the approach.

METHODS

Retrospective review, October 2009 to Jul 2014; 44 patients underwent device closure of DCVSD. Selection criteria: Weight >10kg, no severe/moderate AR or cusp prolapse, defect <7mm, no other intra-cardiac abnormalities, plus evidence of pulmonary hypertension, left heart volume loading, or trivial/mild AR or cusp prolapse. Technique: Anterograde approach and AV loop, angiographic re-evaluation following sheath placement, retrograde device deployment, echocardiographic evaluation of AR and outflow before and after device release.

RESULTS

Median age 63 months (10-170), weight 18kg (10-32), defect 3.7mm (2-6). Associated abnormalities: trivial to mild AR; 1 (2.3%), left heart dilation; 10 (22.7%), MR; 3 (6.8%), coronary cusp prolapse: 11 (25.0%). Devices used: PFM Coil: 10 (22.7%), ADO II: 21 (47.7%), PFM Coil and ADOII 13 (29.5%). Post-procedure murmur was present in 20: of these, the residual shunt disappeared on echo <48 hours in 18 (56,2%) the remainder after 6 months. Complications: hemolysis: 1 (2.3%) referred for surgery, embolisation: 1 (2.3%), residual shunt 1 (2.3%) referred for surgery, RV outflow obstruction: 5 (11.4%) all resolved <3 months, AR increased: 4 (9.0%) 3 recovered to baseline <1 month, one referred for surgery. Mild LV outflow obstruction: 1 (2.3%) resolved <2 months.

CONCLUSION

Despite the controversy surrounding the behavior of implantable devices in the doubly committed VSD anatomy, transcatheter closure appears to be both safe and effective in this selected population. The technique is of particular value in healthcare systems with long surgical waiting lists or limited resources. Coils are associated with a greater incidence of hemolysis than ADOII or Coil & ADOII. Two devices may be required for satisfactory closure in almost 30% of cases. Close follow-up is required to identify hemolysis, outflow obstruction and outlet valve competence.