TRANSCATHETER CLOSURE OF VSD

Do Nguyen Tin MD.
Children Hospital 1
Medical University Center

Transcatheter VSD closure, as opposed to surgical closure, can be considered in patients with muscular, perimembranous and infundibular defects. From recent data, transcatheter VSD closure becomes feasible in selected cases. But, the risks of complications such as AV block, LBBB, TR, AR, embolization, hemolysis… in the procedure always make sense for all interventional cardiologists. The first generation of Amplatzer peri-membranous VSD occluder was recorded with the risk of complete heart block is high, at 5–6%. Except VSD Coil (from Pfm) designed for VSD closure, many modified devices such as ADO I, ADO II, Vascular plug have been used for transcatheter VSD closure. But, no systemic clinical evaluation has reported.

In our experience, we performed transcatheter VSD closure for 575 cases (145 subpulmonic, 370 perimembranous, 70 muscular) with many different types of devices. The successful rate was 97.9%. The complications happened in 12 cases (5 hemolysis, 3 embolization, 1 TR, 1 RVOT stenosis, 1 AV block, 1 AR), estimated 2.1%.

Some special considerations should be considered:

1. Patient selection: The suitable position of the defect for transcatheter closure must be clearly clarified especially if the VSD is remote from the tricuspid and aortic valves. We won't close for inlet extension VSD. We cannot close for large doubly committed VSD (diameter > 6 mm).
2. Device selection based on the morphology of VSD is very important in terms of success and complications. We prefer to use pfm coil and ADOII for subpulmonic VSD, and ADOI, ADOII, Pfm coil for perimembranous and muscular VSD. We stopped using AGA perimembranous VSD device. Understanding the advantages and disadvantages of each type of device in VSD closure is the main key for success.
3. Techniques: Gentle manipulation is always required to avoid the damages of aortic valve, tricuspid valve, AV node, left bundle branche…
4. After procedure: early follow-up for hemolysis, AR, TR, AV block…

Conclusion: Transcathter VSD closure is feasible and effective for some selected cases. Understanding the morphology of VSD and devices will help to get the successful procedure. All avoidable complications must be avoided.