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LONG-TERM RESULTS OF TRANSCATHETER CLOSURE OF LARGE SECUNDUM ATRIAL SEPTAL DEFECT: COMPARISON OF INTRAOPERATIVE DEVICE CLOSURE

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Background Both Transcatheter device closure (TCDC) or intraoperative device closure (IODC) have emerged as new minimally invasive alternatives to the classic surgery in the treatment of secundum atrial septal defect (ASD). However, the long-term safety and efficacy by the two methods for closing large particularly huge ASD remains uncertain. Present study sought to investigate and compare the long-term clinical outcomes by using TCDC and IODC for closure of large-to-huge ASD.

Methods A total 92 patients with large-to-huge ASD (a defect diameter of ≥ 30 mm), treated from January 2003 to Dec 2009, were included in this study. All the patients have been followed up until Dec 2010. The patients were assigned to either TCDC or IODC group according to the patients' or their parents' preference. Baseline physical exams, chest roentgenography, electrocardiography, and echocardiography were performed pre-procedure and at each follow-up visit.

Results 42 patients underwent TCDC and 50 patients received IODC by using Amplatzer septal occluder (ASO). The average diameter of ASD was similar in the two groups (35.2 ± 4.8 mm vs 34.9 ± 4.4 mm, $p > 0.05$). The immediate procedural success rate was 92.9% for TCDC and 98.0% for IODC ($p = 0.328$). The peri-procedural complication rate was 9.5% for TCDC and 28.0% for IODC ($p < 0.05$). The mean length of hospital stay was 6.5 ± 2.7 days for TCDC and 11.9 ± 3.8 days for IODC ($p < 0.001$). At the follow-up of 4.5 ± 2.1 years, there were no cardiac deaths and late complications such as infective endocarditis, transient ischemic attack, ischemic stroke or cerebral haemorrhage, there were no ASO dislodge, valvular or venous compromise and atrial wall erosion by ASO in both group, the residual shunt was not documented in TCDC and only two cases of trivial residual shunt found in IODC.

Conclusions Present study confirmed the long-term safety and efficacy by using ASO for closure of large-to-huge ASD either by TCDC or IODC. However, the acute complication rate was lower and the length of hospital stay was shorter by TCDC.