RESULTS 1287 manuscripts were screened. Twenty studies each outcome. All ages were included.

CONCLUSIONS The use of large stents can significantly reduce the risk of restenosis and are more effective than simple balloon angioplasty. However, restenosis remains common and warrants ongoing surveillance after the initial procedures. This may suggest a role for novel approaches including the use of drug coated balloons.

CATEGORIES CORONARY: Complex and Higher Risk Procedures for Indicated Patients (CHIP)

KEYWORDS Restenosis, Restenosis, in-stent, Venous stenting

TCT-740
Treatment Options for the Closure of Secundum Atrial Septal Defect: A Systematic Review and Meta-Analysis
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BACKGROUND Secundum atrial septal defects (ASD) are treated by surgery (SC) or transcatheter closure (TCC). There is no clear superiority of one technique and there is a scarcity of data directly comparing TCC and SC. This meta-analysis compares the clinical outcomes of the two treatment options for ASD.

METHODS A literature search was performed in MEDLINE, Embase, PubMed, Google Search, and Cochrane databases. Only studies directly comparing SC and TCC of ASDs were included. Of note, by definition and as a limitation of this work, this study compares only device-creates ASD’s (TCC) to all surgically closed ASD’s. Outcomes studied were major and minor acute complications, all-cause mortality, residual shunt, reinterventions, ICU admission, and length of stay (LOS). Odds ratios (OR), standard error mean difference (SMD) and 95% confidence intervals (CI) were calculated using the Mantel-Haenszel method. A random-effect model was used to obtain summary effect. Sensitivity and cumulative analysis was performed for each outcome. All ages were included.

RESULTS 1287 manuscripts were screened. Twenty studies fulfilled the inclusion criteria: all observational studies (total n = 4,672 patients). TCC was superior to SC for the following outcomes: total complications (OR 0.23, 95% CI 0.20 to 0.27; p <0.01), major complications (OR 0.42, 95% CI 0.35 to 0.71; p <0.01), minor complications (OR 0.31, 95% CI 0.16 to 0.57; p <0.01), ICU admission (OR 0.01, 95% CI 0.01 to 0.29; p =0.01), and LOS (SMD -2.33, 95% CI -2.81 to -1.85; p <0.01). Residual shunts were more common with TCC (OR 3.28, 95% CI 1.57 to 6.87; p <0.01). No difference was observed for all-cause mortality (OR 0.34, 95% CI 0.08 to 1.49; p =0.15) or the need of reintervention (OR 1.39, 95% CI 0.49 to 3.96; p =0.61). Amongst adult patients (>18 years) a TCC was associated with shorter LOS (SMD -2.13, 95% CI -2.39 to -1.88; p <0.01).

CONCLUSIONS We present the largest meta-analysis comparing TCC and SC for closure of secundum ASD. Though both approaches are efficacious, for TCC-appropriate ASD’s, TCC is associated with shorter LOS, less morbidity and few ICU admissions, while SC has a lower rate of residual shunting. Of note, many surgical cases included in this meta-analysis likely could only be closed surgically suggesting that both approaches are of value in the care of patients with ASD.

CATEGORIES STRUCTURAL: Congenital and Other Structural Heart Disease

KEYWORDS Atrial septal defect, Closure device, Surgery

TCT-741
Atrial Septal Occlusion: Atrial Disks’ Deformation Is Independent Of Waist Deformation
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BACKGROUND Percutaneous closure of atrial septal defect (ASD) with a self-expandable double-disk ASD septal closure device is a well-accepted technique. Recently, concerns were raised about some rare but catastrophic long-term complications such as aortic erosion. Factors that contribute to this adverse outcome have not been recognized. Intracardiac echocardiography (ICE) can be used to guide device implantation, immediate results and to evaluate device deformation. We hypothesized that additional deformation of the disks of the implanted device may occur independently of its waist compression. The importance of such deformations and their impact on surrounding tissues is not known.

METHODS Consecutive patients undergoing percutaneous ASD closure guided by ICE were enrolled. Defect sizing was conducted with color-Doppler at “stop-flow” during balloon deployment. ICE loops were recorded and retrospectively studied. The length of the compartments of the closure device was measured at horizontal plane. Subsequently, in order to evaluate device deformation, the ratio of the measured to the nominal dimensions of the device was produced. Namely, R-waist (R-W), R-left-atrial-disk (R-LA) and R-right-atrial-disk (R-RA) were calculated.

RESULTS A total of 25 patients were included in the study. In all cases ASD was conducted uneventfully. R-W was 0.65 ± 0.13, R-LA was 0.85 ± 0.10 and R-RA was 0.84 ± 0.07. R-W differed significantly compared to the observed deformation of both disks (R-LA and R-RA), p<0.001. However, R-W was neither correlated with R-LA (r=0.175, p=0.404) nor with R-RA (r=0.123, p=0.538). This indicates that other factors besides mechanical properties of the device affect disks expansion.