TCT-679

Effect of Operator Volume on Complications during Percutaneous Closure of Atrial Septal Defects and Patent Foramen Ovale – A US Perspective of the Last Decade.

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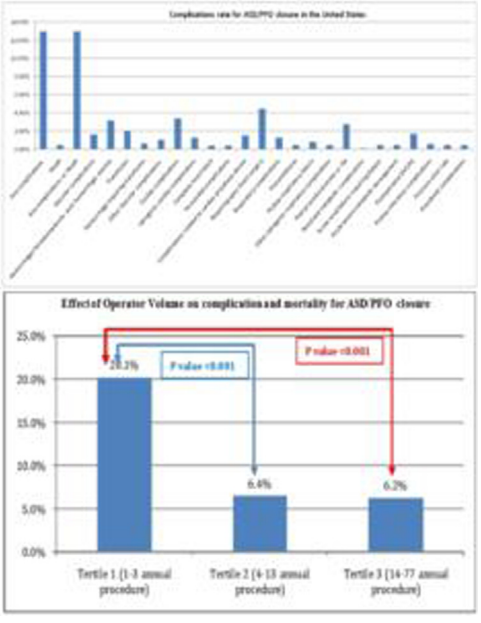
Background: We assessed the trend, predictors and operator volume influence of complication related to Percutaneous closure of atrial septal defect (ASD) and patent foramen ovale (PFO).
Methods: We examined the Healthcare Cost and Utilization Project's Nationwide Inpatient Sample (NIS) database from 2001 to 2010 using ICD 9-CM code for percutaneous ASD/PFO closure (35.52). Only adult (age > 18 year) patients with ASD/PFO (ICD 9-CM – 745.5) Procedural were included in study. NIS is represents 20% of all US hospitals. Complications were identified using Patient Safety Indicators (PSIs) and ICD-9-CM codes. Comorbid conditions were defined by Charlson's Comorbidity Index (CCI). Annual operator and hospital volume was calculated using unique identification numbers and then divided in tertiles for analysis. Hierarchical multilevel regression models were generated to determine independent predictors of peri-procedural complication.
Results: Total of 7,107 (weighted n = 34,990) percutaneous ASD/PFO closure procedures were analyzed. Cardiac complications (3.4%) were most common complication. Significant predictors (OR, 95% CI, P-value) of increased complications were presence of increasing comorbidities (CCI > 2) (2.89, 2.11-3.96, p<0.001), emergent/urgent admission (1.60, 1.23-2.09, p<0.001). Highest tertile of annual operator volume (0.35, 0.25- 0.51, p< 0.001) was associated with lower complication rate.



Conclusions: Vascular and cardiac complications are commonest complication related to ASD/PFO closure. Increasing annual operator volume is significant predictor of lower complication rates.

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Transcatheter device closure of ruptured sinus of Valsalva: not addressing the pathology, does it make a difference

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Background: Ruptured sinus of Valsalva (RSOV) has traditionally been managed by surgery. There are a few case series which do highlight the significant role of Percutaneous intervention for RSOV . The relative concern about the interventional procedure has been persistent unsupported aneurysm that persist even after closure of the defect which would only reflect in follow up studies.
Methods: Patients with isolated rupture of the sinus of Valsalva (RSOV), n=13 who underwent transcatheter device closure were reviewed with their follow up.
Results: There were a total of 13 patients. The mean age was 39 ± 10.0 years. New York Heart Association (NYHA) class at the time of presentation was II (six patients) and III (six patients), class iv (one patient). The RSOVs were all closed using a patent ductus arteriosus device. The mean procedural time was 30 ± 5.4 minutes, while the fluoroscopic time was 20 ± 7 minutes. The average hospital stay was 2 ± 1.1 days. There was one on table mortality. The patients were followed up for a mean of 3 years (ranging from 1 month to 5 years). All had complete closure of the shunt in follow up . During the learning curve we modified the technique making subtle changes such as use of buddy wire, kissing technique for right ventricular outflow tract opening and use of braided sheaths for the same. At the time of the last follow up all the patients were in NYHA class I and there was one hospital mortality, latter highlighting the importance of case selection for the procedure. No increase in distortion indices viz aortic annulus, aortic root, St junction and ascending aortic dimensions were observed.
Conclusions: We conclude transcatheter closure of isolated RSOV is a viable alternative to surgical repair with good outcome on echocardiographic follow up .Though a long term data is required particularly with respect to aortic root distortion evaluated by other imaging modality like CT scan or MRI.

TCT-681

Effect of Intra-Cardiac Echocardiography on Complications of Percutaneous Left Atrial Appendage Closure: A 5 Year Perspective of the United States.

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Background: We assessed the trends and predictors of complication related to Left Atrial Appendage (LAA) closure.
Methods: We included cases from Healthcare Cost and Utilization Project's Nationwide Inpatient Sample (NIS) database from year 2006 to 2010 using ICD9 procedure code 37.90 for percutaneous LAA Closure. NIS is the largest all-payer database which represents 20% of all US hospitals. We used Deyo modification of Charlson's Comorbidity Index (CCI) to define comorbidities. Procedural complications were identified using Patient Safety Indicators (PSIs) and ICD-9-CM codes. Annual hospital volume was calculated using unique hospital identifier. Hierarchical multilevel regression models were generated to determine independent predictors of peri-procedural complication.
Results: We identified total of 1288 procedures,majority were performed in large teaching hospitals. Overall periprocedural complication rate was 24.6%. Notable complications were cardiac (12.4%), Vascular (4.5%), respiratory (5.7%) and neurological (3.3%). CCI > 2 (OR=3.85, 1.39-10.72, P=0.01) was associated with increased complication whereas higher annual hospital volume (OR=0.002, 0.0 -0.027, P<0.001) was associated with lower complication rate. Procedures performed with the use of intra-cardiac echocardiography (ICE) had lower rate of cardiac complication (5.4% with ICE vs. 12.4% with no ICE, P<0.001) and overall mortality (0% with ICE vs. 2.4% with no ICE, P<0.001).

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