including pre-procedural percent stenosis, PV pressure gradients, method of intervention, complications, and recurrence. **RESULTS** Of the 112 patients who went to the lab, we analyzed data encompassing 216 veins with 39 veins not intervened upon secondary to complete occlusion or lack of substantial PV-LA pressure gradient. After an initial 94% procedural success rate, there were 76 PVS recurrences (44%) over a median follow up time of 4.6 years. We found those who experienced PVS recurrence had significantly higher post-procedural PV/LA gradients (3.8±4.9 mmHg vs 1.7±1.8 mmHg, p=0.001) compared to those who avoided recurrence. Patients who underwent initial stenting compared to balloon dilation had a 44% reduction in recurrence compared to those who underwent balloon dilation only (RR=0.56, 95% CI 0.41 to 0.75, p=0.0001, Figure 1). We also note significantly higher balloon atmosphere inflations among patients who did not recur (9.1±4.0 atm vs 7.3±2.3 atm, p=0.007) with no difference in pre-procedural lesion characteristics or stent/balloon size.

**CONCLUSIONS** These results demonstrate PVS recurrence is common, and is more likely to occur over a lengthy follow up in those who initially underwent balloon dilation compared to stenting. Furthermore, difficult lesions where higher balloon insufflation cannot be achieved resulting in higher post-procedure PV/LA gradients are more likely to result in recurrence. Thus, PVS should be initially treated with stenting to avoid further sequelae of PVI such as recurrent PVS.

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

**KEYWORDS** Stent, Transseptal puncture, Venous stenting

**TCT-28**

Treat and Repair Strategies for Adult Patients with Atrial Septal Defect and Severe Pulmonary Atrial Hypertension

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**BACKGROUND** Optimal therapeutic strategies for patients with atrial septal defect (ASD) complicated with severe pulmonary arterial hypertension (PAH) is controversial. Combination of recent advanced PAH specific medication and transcatheter ASD closure may contribute the improvement of therapeutic outcome in these difficult patients population. Our purpose was to evaluate the efficacy of PAH-specific medications combined with transcatheter closure.

**METHODS** Between January 2006 and December 2013, 780 patients with ASD were performed transcatheter closure, and 48 of 780 patients (6.2%) complicated with PAH (mean pulmonary artery pressure ≥ 25 mm Hg). Following patients were excluded from this study because of pulmonary hypertension related to lung diseases (n=8), left ventricular systolic dysfunction (n=3) and pulmonary embolism (n=1). Among 38 patients with PAH associated with ASD, 3 patients excluded because the defects was too large for device deployment. A total of 35 patients underwent successful procedures and were included in this study. Among of these, 8 patients with severe PAH were required of PAH-specific medication (PAH specific group) and compared to 40 patients who did not required of PAH-specific medication (non PAH-specific group) were studied. PAH-specific medications included an endothelin receptor antagonist (bosentan; 0–1 g), a phosphodiesterase type-5 inhibitor (sildenafil; n=4), an oral prostanoïd (beraprost; n=1), and an intravenous prostanoïd (epoprostenol; n=2).

**RESULTS** After the induction of PAH specific medication (mean 6.6 months), transcatheter ASD closure was successfully performed in all without hemodynamic intolerances. Mean device size was 26±7 mm and the mean fluoroscopic time was 15±8 min. Multiple devices were required in 2 patients. No hemodynamic compromise occurred in any of the patients during or after the procedure. Improvement of systolic PAP was significantly greater in PAH-specific group compared to non PAH-specific group (median, 49; range, 26 to 105 mm Hg vs. median, 14; range 4 to 77 mm Hg, respectively; p=0.0014). Among 29 patients with symptomatic heart failure, improved heart failure symptoms was observed in 21 (72%) patients with no exacerbation of heart failure. Compared with the initial evaluation, BNP levels significantly improved at follow-up at follow-up period (p=0.0017). During the mean observational period of 45±25 months, one patient required hospital admission due to the progression of sick sinus syndrome. No other adverse events including hospitalization of exacerbation of PAH were observed.

**CONCLUSIONS** Even in patients with severe PAH, who initially did not fulfill the indication of transcatheter ASD closure, the recent PAH specific medication can contribute the significant improvement of hemodynamic condition. This treat and repair strategies may expand of therapeutic indication for transcatheter ASD closure in patients with severe PAH.

**CATEGORIES STRUCTURAL:** Congenital and Other Structural Heart Disease

**KEYWORDS** Atrial septal defect, Device closure, Pulmonary hypertension

**TCT-29**

Safety and Efficacy of Percutaneous Device Closure of Large Post Tricuspid Shunts in Pediatric Patients With Severe PAH At Short Term and Midterm Follow Up

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**BACKGROUND** Transcatheter closure of large post-tricuspid shunts in patients with severe pulmonary arterial hypertension (PAH) remains a challenging clinical problem. In neonates and infants it is almost often reversible, but in older patients the resolution of PAH is variable depending on the reversibility of pulmonary vascular resistance. The current study was done to assess the safety and efficacy of percutaneous device closure of large post tricuspid shunts in pediatric patients with severe PAH at short and mid term follow up.

**METHODS** A total of 42 pediatric patients underwent transcatheter closure of large post tricuspid shunts with severe PAH. All subjects underwent clinical examination, electrocardiography, chest x-rays and echocardiography before and during deployment. A total of 35 patients underwent successful procedures and were included in this study because of pulmonary hypertension related to lung diseases (n=8), left ventricular systolic dysfunction (n=3) and pulmonary embolism (n=1). Among 38 patients with PAH associated with ASD, 3 patients excluded because the defects was too large for device deployment. A total of 35 patients underwent successful procedures and were included in this study. Among of these, 8 patients with severe PAH were required of PAH-specific medication (PAH specific group) and compared to 40 patients who did not required of PAH-specific medication (non PAH-specific group) were studied. PAH-specific medications included an endothelin receptor antagonist (bosentan; 0–1 g), a phosphodiesterase type-5 inhibitor (sildenafil; n=4), an oral prostanoïd (beraprost; n=1), and an intravenous prostanoïd (epoprostenol; n=2).

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