with depressed LV-SFx. Patients with depressed LV-SFx prior to PDA occlusion, additional hemodynamically significant cardiac defects, multiple PDA interventions, incomplete follow-up or incomplete echo studies were excluded.

*Results:* The total number of patients who underwent one intervention for PDA occlusion and had complete echo data were 188. 16/188 patients (8.5%) were born prematurely. 159 patients (85%) had normal LV-SFx while 29 patients (15%) had depressed LV-SFx after PDA occlusion. Of those with depressed function, 7 patients were after surgical PDA ligation while 22 patients had catheter PDA device occlusion. LV-SFx recovered within 4–6 weeks in 11 patients, within 3–6 months in 11 patients, and within 7–12 months in 7 patients. Within the first 6 month, complete recovery of LV-SFx was observed in 70% of these patients. None of the preterm babies in our study had depressed LV-SFx after PDA occlusion.

*Conclusions:* Depressed LV-SFx may occur after PDA closure with higher incidence after catheter PDA device occlusion. All of preterm babies had surgical PDA occlusion and none of them presented with depressed LV-SFx in the post-operative follow-up. Further prospective studies are needed to investigate these observations.

## 32. Incidence and predictors of progression of Coronary Artery Disease among high risk patients with recurrent symptoms

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*Background/Aim: Background:* Coronary Artery Disease (CAD) is the leading cause of mortality worldwide. In the current era with highly potent medical therapy, the rate of progression of angiographic CAD is not well described. Thus, the aim of this analysis is to describe the rate and predictors of progression of CAD among patients with recurrent symptoms.

*Methods:* We reviewed 259 patients (Mean age 60± 11 years, 71% males) who underwent two coronary angiograms between 2008 and 2013. Patients were excluded if they underwent bypass surgery between the two angiograms. Progressive CAD was defined as (A) obstructive CAD in a previously disease-free segment; or (B) new obstruction in a previously non-obstructive segment. Multivariate logistic regression was used to determine the independent predictors of progression of CAD.

*Results:* The mean duration between the two angiograms was 29 ± 13 months. A total of 159 patients (61%) had progression of CAD. Included patients had high prevalence of coronary risk factors (Hypertension 71%, diabetes mellitus 69%, Dyslipidemia 75%). Most patients had controlled dyslipidemia (64% had LDL <70 mg/dl); however, 72% and 40% of patients had glycosylated hemoglobin more than 7% and 8% respectively; 32% of patients had systolic blood pressure more than 140 mmHg. Using multivariate logistic regression, a drop in the left ventricular ejection fraction >5% was the only predictor of CAD progression (adjusted odds ratio 5.8, $p = 0.042$, 95% CI 1.1–31.2).

*Conclusions:* Among high risk patients with recurrent symptoms, the short term rate of progression of CAD is high. A drop in LVEF >5% is the best predictor of progression of CAD. Further studies are needed to determine the prognostic value of CAD progression in the era of potent medical therapy.

## 33. Two dimensional and M-mode measurements of tricuspid annular systolic plane excursion, are they comparable?

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*Introduction:* Right ventricular (RV) function has been shown to be a major determinant of clinical outcome. American Society of Echocardiography (ASE) recommends using several measurements to assess RV function including tricuspid annular systolic plane excursion (TAPSE). Conventionally, TAPSE is measured from M-mode interrogation of tricuspid annulus in 4-chamber view which was not routine measurement in many echocardiographic laboratories prior to the guidelines. In this study we sought to determine the feasibility to measure TAPSE from 2-dimensional echo (2D-TAPSE) and to compare it with that obtained by M-mode (MM-TAPSE).

*Methods:* We included 45 patients referred for RV function assessment. MM-TAPSE measurements were obtained from routinely performed echocardiography. 2D TAPSE measurements were obtained offline by an experienced echocardiologist. It was calculated as the difference in the distance between tricuspid annular plane and a fixed point in the image sector in diastole and systole.

*Results:* The mean age was 34.9 ± 13 years, males were 46%. The 2D-TAPSE measurements were feasible in all the patients (100%). MM-TAPSE was 2.05 ± 0.49 cm and 2D-TAPSE was 1.96 ± 0.47 cm, the mean difference was −0.08 ± 0.2 cm. There was good correlation between the two methods; the correlation coefficient was 0.81. Intra-class correlation (ICC) test also showed very good agreement between MM-TAPSE and 2D-TAPSE (ICC coefficient = 0.90, $p < 0.001$).

*Conclusion:* MM-TAPSE and 2D-TAPSE correlate strongly. 2D-TAPSE can provide a reliable alternative to MM-TAPSE to quantitatively measure RV systolic function and may be especially useful in situations where retrospective comparisons are sought.

## 34. Radial artery ultrasound preceding transradial coronary angiography

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*Background and purpose:* Transradial approaches (TRA) became the preferred vascular access during conventional coronary angiography (CCA). In fact a smaller mean radial artery diameter (RAD) may lead to higher rates of vascular access complications (VAC); however, there are no data regarding the effect of radial cross sectional area (CSA) and perimeter. We therefore evaluated the impact of preprocedure radial artery diameter, CSA and perimeter on vascular complications.
*Methods:* We conducted a single-center prospective analysis of 207 patients underwent CCA. A radial artery ultrasound performed pre and post CCA to measure RAD, CSA, and perimeter.
*Results:* The average RAD, CSA and perimeter were (2.7 ± 0.55 mm), (6.3 ± 1.9 mm$^2$), (9.2 ± 1.7 mm) respectively. The same measurements were significantly larger in men than in women (2.8 ± 0.5 vs. 2.3 ± 0.4 mm [$P < 0.0001$], 6.7 ± 1.8 vs. 4.9 ± 1.4 mm [$P < 0.0001$], and 9.6 ± 1.5 vs. 9 ± 1.7 mm [$P = 0.001$], respectively). Fourteen patients (6.8%) had VACs. The RAD, CSA and perimeter were significantly smaller in procedures with VACs than in procedure with no complications (2.1 ± 0.5 vs. 2.7 ± 0.5 [$P = 0.014$], 4.6 ± 1.4 vs. 9.4 ± 1.6 [$P = 0.014$], and 7.2 ± 1.8 vs. 9.4 ± 1.6 [$P = 0.022$], respectively). Univariate logistic regression showed that radial ultrasonic parameters can independently predict VACs as follows: RAD (Odds ratio (OR) = 1.4. 95% CI 1.08–1.68, $p = 007$) for RAD, (OR = 2. 26. 95% CI 1.11–4.58, $p = 0.24$) For CSA and (OR = 2.86. 95% CI 1.3–6, $p = 0.006$) for perimeter.
*Summary:* ultrasonic study of the radial artery before CCA can provide important information regarding the vascular access. We found that a smaller radial diameter, CSA and perimeter are associated with higher rates of VACs.

## 35. Incomplete right ventricular remodeling after transcatheter atrial septal defect closure in pediatric age

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*Background:* Published data showing the intermediate effect of transcatheter device closure of atrial septal defect (ASD) in the pediatric age group are scarce.
*Objective:* To assess the effects of transcatheter ASD closure on right and left ventricular functions by tissue Doppler imaging (TDI).
*Patients & Methods:* The study included 37 consecutive patients diagnosed as ASD II by TTE and TEE and referred for transcatheter closure at Cairo University Specialized Pediatric Hospital, Egypt from October 2010 to July 2013. 37 age and sex matched was selected as control group. TDI was obtained using the pulsed Doppler mode, interrogating the right cardiac border (the tricuspid annulus) and interventricular septum (lateral mitral annulus) and myocardial performance index (MPI) was calculated at 1, 6 and 12 months post device closure.
*Results:* Transcatheter closure of ASD and echocardiographic examinations were successfully performed in all patients. There were no significant differences between two groups as regards age, gender, weight or BSA. By TDI, patients with ASD had significantly prolonged IVCT, IVRT and MPI compared to control group. Decreased tissue Doppler velocities of RV and LV began at 1 month post-closure compared to the controls. Improvement of RVMPI and LVMPI began at 1 month post-closure but still they are prolonged till 1 year.
*Conclusion:* Reverse remodeling of right and left ventricles began 1 month after transcatheter ASD closure but didn't completely return to normal even after 1 year follow-up by TDI.

## 36. Clinical profile of coronary slow flow phenomena – A cardiac Y syndrome

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*Background:* Coronary slow flow phenomenon (CSFP) is characterized by delayed progression of the contrast medium injected through the coronary tree during Coronary Angiogram (CAG). CSFP is usually observed in patient with various spectrum of Coronary Artery Disease including Acute Coronary Syndrome and