Results: Using TTDE, it was possible to visualize the distal LAD flow in 49 among 60 patients with angiographically patent LAD. Occluded LAD was detected in 9 among 14 patients with angiographically occluded LAD. The sensitivity, specificity, positive predictive value, negative predictive value and accuracy of the transthoracic Doppler echocardiography in the noninvasive assessment of the left anterior descending artery reperfusion with 2.5 MHz transducer were 81.6%, 64%, 90.7%, 54% and 78% respectively. Detection of the distal left anterior descending artery flow by TTDE was significantly correlated with the reperfusion of the left anterior descending artery as assessed by coronary angiography (P = 0.001).

Conclusions: Unlike the widely used noninvasive methods (ECG changes, resolution of ischemic-type of chest pain and characteristic pattern of rise and decline of cardiac markers) for assessment of reperfusion following anterior myocardial infarction, the use of TTDE can be used as more reliable, simple, noninvasive, and widely available tool for direct visualization of the LAD distal flow.

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Long term results of surgical management of anomalous origin of the left coronary artery from pulmonary artery (ALCAPA) and mitral incompetence

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Background: Establishment of two coronary systems is not the end point of challenge in management of anomalous origin of the left coronary artery from pulmonary artery (ALCAPA). To touch or not touch the mitral valve if there is severe mitral regurgitation is still a point of big challenge, another point is the timing and criteria for mechanical support (ECMO).

Methods: Forty-seven cases with a median age of 1.29 years (28 days to 8 years) underwent ALCAPA repair from January 1985 to July 2012. Seven cases (14.89%) had associated lesions. Ligation of anomalous left coronary artery was performed in four cases (8.51%), Takeuchi’s repair was done for three cases (6.38%) and 40 cases (85.1%) underwent direct aortic implantation of left coronary artery.

Results: Preoperative echo showed moderate to severe left ventricular dysfunction with severe mitral regurgitation in 15 cases (31.91%). Mortality rate was 17.02% (eight cases). Four cases (8.51%) needed ECMO support in operating room and two patients needed ECMO support in intensive care unit. Mitral valve repair was adopted in three cases (6.38) and mitral valve replacement was performed in one case (2.12%). Early postoperative echo showed moderate to severe mitral regurgite with severe LV dysfunction in eight cases (17.02%) which improved in the first year of follow up. One case (2.12%) returned back with left coronary artery origin stenosis after Takeuchi’s repair.

Conclusion: Early diagnosis and repair of ALCAPA improve outcome of surgery. Aortic implantation of left coronary artery is the best technique of ALCAPA repair and can be done easily. In severe mitral regurgitation, it is better not to touch the mitral valve as repair is very technically demanding especially in small babies without expected good results and consumes a lot of cross-clamp time with subsequent bad impact on surgical outcome. Mechanical support should be decided according to the degree of LV dysfunction and severity of mitral valve regurgitation.

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Total anomalous pulmonary venous connection repair; risk factors and outcome

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Background: Repair of total anomalous pulmonary venous connection (TAPVC) is associated with high mortality and morbidity. Age of presentation, low birth weight, type of TAPVC, pre-operative infection, clinical situation, pulmonary venous obstruction, pulmonary hypertension and associated lesions are very important factors affect the outcome of TAPVC repair.

Methods: Seventy patients underwent TAPVC repair from 2000 to 2012 with a median age of 33 days and mean weight of 4.6 kg. Twenty-six patients (48.6%) had supra-cardiac type, 23 patients (32.8%) had intracardiac type, and nine patients (8.6%) had infracardiac type, while seven patients (10%) had mixed TAPVC.

Results: Operative mortality was 5.7% (4 patients), while late deaths was 4.3% (3 patients). Four patients out of these 7 deaths were due to pulmonary hypertensive crisis (4/7, 57.1%). Obstruction and single-ventricle physiology were associated with a higher mortality rate (3/7, 42.9%). Mean CPB time was 104.3 min (range, 70–190 min) and mean cross-clamp time was 42.4 min (range, 29–70 min). Three patients had recurrent pulmonary venous obstruction. (4.3%) which required early re-intervention.

Conclusion: Mortality rate in TAPVC repair is higher in those patients who had single-ventricle physiology or pulmonary venous obstruction at time of repair. Pulmonary hypertension is another risk factor affecting the post-operative course of infants with TAPVC, particularly patients with obstructed, infracardiac TAPVC.

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Impact of clinical factors on response to clopidogrel therapy in patients with acute coronary syndrome

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Background: A heterogeneous platelet reactivity response to clopidogrel exists, and the clinical or biochemical predictors of suboptimal response to clopidogrel remain unclear.

Objectives: The goal of this study was to identify factors associated with higher platelet aggregation following clopidogrel therapy in subjects with acute coronary syndrome (ACS).

Methods: This study was conducted on 62 subjects with ACS requiring treatment with clopidogrel (75 mg daily for 7 days or more). The subjects were divided into diabetic and non diabetic groups. Chrono-log Aggeregometer Series 490 used to estimate platelet aggregation. Factors associated with lower response to clopidogrel were identified.

Results: A heterogeneous, normally distributed platelet aggregation (mean 38.58 ± 18.6%) was observed in 62 subjects (age 56.13 ± 7.9 years; 66.1% men). Statistical analysis revealed significant increased platelet aggregation in patients with history of coronary artery disease (CAD) (44.17 ± 16.3 vs 31.33 ± 19.17, p = 0.006), hypertension (44.47 ± 18.79 vs 31.43 ± 15.91, p = 0.005) and body mass index (BMI) ≥ 5 kg/m² (42.54 ± 17.6 vs 27.19 ± 17.04, p = 0.004). Diabetic patients demonstrated a trend to lower response to clopidogrel treatment with platelet aggregation (42.87 ± 18.54) compared to non diabetic patients (34.29 ± 17.93) but this did not reach a statistical significance (p = 0.069). Positive correlations were found between platelet aggregation % and the level of fasting blood sugar (P < 0.001), body weight (p = 0.023) and BMI (P = 0.005).

Conclusions: Hypertension, past history of CAD, BMI ≥ 25 kg/m² and diabetes mellitus are associated with higher platelet aggregation following clopidogrel treatment in patients with ACS. Positive correlations were found between platelet aggregation and the level of fasting blood sugar, body weight and BMI in those patients.

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Obesity in Egyptian children: Effect on cardiac function and dimensions

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Objectives: To define the effect of obesity in Egyptian children on cardiac function and dimensions also to investigate the possible relation between obesity and other co-morbid cardiovascular risk factors.

Methods: Prospective descriptive study conducted over 15 months and included 44 children with xogenous obesity aged from 4 to 16 years with a mean of 8.54 ± 2.4 years in addition to a healthy normal weight, matched age and sex 35 children as a control group. All study groups underwent clinical examination, lipid profile in addition to meticulous echocardiography study.

Results: Blood pressure was comparable in both groups and mean serum triglyceride level (though in the normal range) was significantly higher in the obese group with P = 0.035. left ventricular wall thickness, mass and mass index were significantly higher in obese group compared to normal weight group with P value 0.001, 0.045 and 0.035 respectively. Myocardial diastolic function presented by isovolumetric relaxation time and E/A was significantly different in favor for the control group. However by correlating cardiac dimension with the lipid profile no significant relation could be elicited.

Conclusions: Obesity in the absence of dyslipidemia and hypertension (as co-morbid cardiovascular risk factors) is associated with increased left ventricular wall thickness and mass also it is a risk factor for left ventricle diastolic dysfunction.

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The fate of the neoaortic valve and root following the modified Ross-Konno

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Objectives: In children with aortic valve disease associated with annular hypoplasia or complex multi-level left ventricular outflow tract obstruction (LVOTO), the Ross procedure, combined with a modified Konno-type aortoventriculoplasty is advocated. We aim to examine the fate of the neoaortic apparatus and assess neoaortic valve function following the modified Ross-Konno procedure.

Methods: Forty-three patients, median age 6 years, underwent modified Ross-Konno with myectomy but without ventricular septal patch utilization. Serial post-operative echocardiograms (n = 187) were analyzed and regression models adjusted for repeated measures were used to model longitudinal growth of neoaortic annulus and root.

Results: There were 2 operative deaths (5%) and 1 late mortality. At 8 years, survival was 93% and freedom from autograft, homograft and all-cause reoperation was 100%, 81%, and 72%, respectively. Median post-procedure diameter and Z-score were 14 mm (7–21 mm), and 1.25 (–3 to +6.1) for neoaortic annulus and 21 mm (9–30 mm) and 1.55 (–1.3 to +4.1) for neoaortic root. Serial echocardiograms showed progressive increase in annular (+0.56 mm/year, p < 0.001) and root (+0.89 mm/year, p < 0.001) diameters but little change in annular (–0.07/year, p = 0.08) and root (–0.002/year, p = 0.96) Z-scores. Nine patients developed autograft regurgitation, however the degree and progression of regurgitation were not significant (p = 0.22).

Conclusions: In children undergoing the modified Ross-Konno procedure, the neoaortic annulus and root increase in size proportionately to somatic growth. Few patients developed autograft regurgitation, usually mild and stable, and none required autograft reoperation. Our findings support the use of modified Ross-Konno