week 36 resulted in stillbirth. No developmental abnormalities were seen in the babies. At long-term follow up of mothers, the mitral valve area was $1.8 \pm 0.52$ cm$^2$, restenosis developed in three patient (16%). One baby died at one week from sudden infant death syndrome, one at eight months from pneumonia. All other children showed normal growth, development and speech for their age.

Conclusion: Mitral balloon valvotomy using the Inoue balloon technique can provide satisfactory immediate and long-term outcome in pregnant patients with severe mitral stenosis.

http://dx.doi.org/10.1016/j.ehj.2013.12.044

**Atrial electromechanical abnormalities in hypertensive patients with diastolic dysfunction**

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**Purpose:** It was to compare atrial electromechanical delays (AEMDs) by pulsed tissue Doppler echocardiography between hypertensive patients and healthy controls. It was used as a predictor for development of atrial arrhythmias as proved by other studies.

**Methods:** We examined 60 subjects; 20 normotensive (Controls), 20 hypertensive with LV diastolic dysfunction (Group I) and 20 hypertensive without LV diastolic dysfunction (Group II). Exclusion criteria were: receiving B-blockers or non-dihydropyridine calcium channel blockers, Diabetes mellitus, Coronary heart disease and Systolic heart failure. All were examined to assess BP, left atrium and ventricle, and mitral valve flow. The Pulsed wave tissue Doppler imaging is used to assess diastolic function and AEMDs. In apical 4-chamber view, using the pulse wave Doppler, Time intervals from the onset of P wave on surface electrocardiography to the beginning of A wave (PA) were obtained from lateral mitral annulus, septal mitral annulus, and lateral tricuspid annulus and named as lateral PA, septal PA, and RV PA, respectively. The difference between septal PA and RV PA was defined as Intra-right AEMD. The difference between lateral PA and septal PA was defined as Intra-left AEMD. The difference between lateral PA and RV PA was defined as Inter-AEMD.

**Results:** The Inter-AEMD was significantly higher in Group I compared with Group II and Controls. The Intra-Left AEMD was significantly higher in Group I and Group II compared with Controls. There was no significant difference between Controls and Groups as regard to Inter-Right AEMD. There was a positive correlation between systolic blood pressure, LA diameter and volume, LV mass, E/E’ from one side and Inter-AEMD and Intra-Left AEMD from the other side. There was a negative correlation between E wave, E/A ratio and E’/wave from one side and Inter-AEMD and Intra-LeftAEMD from the other side. The Inter-AEMD and the Intra-Left AEMD were significantly higher in subjects with LV hypertrophy than those without. There was no significant correlation between the Intra-Right AEMD and left ventricular hypertrophy.

**Conclusion:** The Inter-AEMD was significantly higher in hypertensive patients with diastolic dysfunction compared with those without diastolic dysfunction and controls. Intra-left AEMD was significantly higher in hypertensive patients with diastolic dysfunction and without diastolic dysfunction compared with normotensives, suggesting that diastolic dysfunction is associated with atrial electromechanical abnormalities.

http://dx.doi.org/10.1016/j.ehj.2013.12.045

**Arrhythmogenic pattern of Congenital Heart Diseases (CHD) in Children**

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The aim of this work is to detect and delineate the arrhythmogenic Pattern of congenital heart diseases regarding its types incidence, and out come.

**Background:** CHD represents the most important components of pediatric Cardiovascular disease. The incidence of CHD in live births ranged from (0.5–3%) WHO. The most life threatening complications of CHD were the different types of arrhythmias.

**Methodology:** The present study was conducted upon 100 children suffering from CHD. Also selected 50 healthy child as control group age matched were included. They were following the Outpatient Clinic Abou Rish Hospital, Cairo University from (2008 to 2011).

– They aged from (20 days till 6 years).
– All patients were subjected to thorough clinical history and examination, X-ray Chest, ECG -12 leads, long strip lead II and Echocardiography.
– Some cases were subjected to cardiac, 24-h ECG recording (Holter).

**Results:** All the results were statistically analyzed.

– Sex distribution among study was 45% females 55% males.
– The incidence if arrhythmogenic pattern in the studied group were (57%) suffering from arrhythmias. While (43%) were not affected.
– The percentage of the different types of arrhythmias was as follows: among the affected group.
– Atrial fibrillation (21.4%), supraventricular tachyarrhythmia (49.7%), Sick sinus syndrome (5.2%), ventricular tachycardia (5.2%), extrasystole (12%), heart block I(3.5%), heart block type II (3.5%).
– Congenital cyanotic heart disease has highly significant statistical correlation with the incidence of arrhythmias pattern ($p < 0.01$).
– While acyanotic CHD has non significant relation ($p > 0.05$).

**Conclusion:**

– The congenital cyanotic heart diseases have the higher incidence of arrhythmias more than the acyanotic group and control.
– The early affection of the different types of arrhythmias are most serious and life threatening.

http://dx.doi.org/10.1016/j.ehj.2013.12.046

**Multidetector CT angiography as a noninvasive tool to assess graft patency of surgically reconstructed diffusely diseased coronary arteries**

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http://dx.doi.org/10.1016/j.ehj.2013.12.045
Background: Recent refinements in percutaneous techniques have resulted in an increase in the numbers of patients with diffuse coronary artery disease who are referred to cardiac surgeons. Long reconstruction of the diffusely diseased vessel may be a useful surgical option. Close and careful follow up of such subgroup of patients is mandatory. Invasive graft angiography serves as the diagnostic standard for follow up of graft patency for such extensive procedure; however, because of the risks, discomfort, and costs of a hospital stay, a noninvasive diagnostic tool is desirable. MDCT angiography is a noninvasive and safe alternative to assess graft patency in patients after CABG with reconstructed diffusely diseased vessels.

Methods: Between July 2007 and September 2011, 62 patients with the diffusely diseased LAD underwent a long-segmental reconstruction procedure with a LITA graft. The diffusely diseased LAD was extensively incised, additional endarterectomy was performed if necessary, and then the LAD was reconstructed with an ITA graft in a long on-lay fashion. Postoperative MDCT angiography as a non invasive single tool was performed in 25 asymptomatic patients to assess graft patency with at least 6 months postoperative period.

Results: The cohort consisted of 23 men (92%) and 2 women (8%), and the mean age was 58.5 ± 9.2 years. The mean length of the arti- riotomy incision was 3.5 ± 1.2 cm (range, 2.5–5 cm). Endarterectomy was performed in 3 patients (12%), perioperative MI was recorded among 1 patient (4%). ITA to LAD graft was patent in all patients (100%) including that patient who had perioperative MI. Other incidental findings were found in venous grafts.

Conclusion: Extensive reconstruction of the diffusely diseased LAD using an ITA graft could be performed safely with very encouraging results. MDCT angiography is an excellent non invasive tool not only to evaluate graft patency in the reconstructed LAD but also to detect other findings in asymptomatic patients with diffuse coronary artery disease for better and more close follow up.

http://dx.doi.org/10.1016/j.ehj.2013.12.047

Myocardial performance in children with autoimmune hepatitis: Doppler tissue imaging study

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Purpose: The aim of this study was to assess subclinical impact of autoimmune hepatitis (AIH) on global myocardial performance in children using Doppler tissue imaging (DTI) and to correlate it with total serum IgG.

Methods: We included 30 children with AIH (mean age = 12.67 ± 2.9 years) as the study group and 20 age and sex matched healthy children (mean age = 11.93 ± 2.66 years) as the control group. Conventional two-dimensional echocardiography was performed to both groups and DTI were used to determine Right ventricular (RV) and left ventricular (LV) Tei indexes. Total serum IgG levels at initial diagnosis of AIH were retrieved from our hospital data-base and were correlated to the cardiac functions of AIH patients.

Results: Right ventricular (RV) and left ventricular (LV) Tei indexes were significantly higher in AIH group (mean ± SD: 0.46 ± 0.088 vs. 0.26 ± 0.01, P < 0.0001 and 0.45 ± 0.086 vs. 0.31 ± 0.02, P < 0.0001, respectively). Mitral and tricuspid systolic (Sm) velocities were significantly lower in AIH children (mean ± SD: 8.226 ± 1.73 vs. 9.93 ± 0.94 cm/s, P = 0.0002 and 10.85 ± 1.11 vs. 12.48 ± 0.53 cm/s, P < 0.0001, respectively). Total IgG concentrations were significantly higher in AIH children [mean ± SD: 2841.3 ± 607.17 vs. 862.67 ± 70.35 mg/dl, P < 0.0001], and they correlated positively with the LV Tei index (r = 0.69, P < 0.0001) and the RV Tei index (r = 0.61, P < 0.0003) and correlated negatively with the mitral systolic (Sm) velocity (r = −0.76, P < 0.0001) and tricuspid systolic (Sm) velocity (r = −0.66, P < 0.0001), on the other hand, fractional shortening (FS) did not correlate with serum IgG concentrations (r = −0.04, P = 0.821).

Conclusion: The DTI technique appears to be more sensitive than conventional echocardiography in the early detection of myocardial dysfunction in AIH children.

http://dx.doi.org/10.1016/j.ehj.2013.12.048

NHI program for introducing thoracoscopic minimally invasive mitral and tricuspid valve surgery

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Background: In the last decade worldwide and in Egypt, there is an increasing interest and patient demand for minimally invasive cardiac surgery.

Methods and results: Since February 12, 2013 till May 9, 2013, six patients underwent thoracoscopic mitral and tricuspid valve surgery (1 tricuspid valve replacement , 1 mitral valve repair, 2 mitral valve replacement , 2 mitral valve replacement and tricuspid repair). Pre-dominant rheumatic in MVR and 1 case was degenerative and the tri-cuspid case was infective endocarditis. Mean age was 35 years. The procedure was successfully performed in all in the form of 4–5 cm right submammary incision with femoro-femoral canulation for CPB and long shafted instruments with the aid of thoracoscopic view. Conversion rate to open procedure was (0%). No Hospital mortality was encountered (0%). Mean Bypass time was (90 min) and the cross clamp time was (65 min). This time is decreasing gradually towards conventional procedure times. Ventilation time was (7 h) and postoperative ICU stay was 3 days, Postoperative morbidity included right phrenic nerve palsy in one patient which recovered after two weeks. Echocardiographic follow-up showed trivial degree of mitral regurgitation (MVP) and well functioning prosthetic valve in the other four. The tricuspid valve showed well-functioning tissue valve with no paravalvular leak (one case) and mild regurge in the repair group (5 patients MVR + TR). All the patients reported mild postoperative pain and felt they had a pleasing scar. All patients were back to work and usual household activities within 4 weeks.

Conclusions: Thoracoscopic minimally invasive mitral valve surgery can be performed safely but definitely requires a learning curve. Good results and a high patient satisfaction are guaranteed. We now utilize this approach for isolated atriointerventricular valve disease and our plan is to make this exclusive by the end of this year for all the patients except Redo Cases.

http://dx.doi.org/10.1016/j.ehj.2013.12.049