Cardiology

441. Doppler Study of Carotid Arteries to Evaluate Atherosclerotic Changes in Patients of Coronary Artery Disease

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Objective: To correlate the occurrence of carotid artery atherosclerosis, by Doppler study, with coronary artery disease and to study the prospects of routine use of Carotid artery Doppler study with 2D-echocardiography and Doppler study of heart to prevent and treat atherosclerotic disease of blood vessels with special reference to coronary artery disease and its complications.

Methods: Fifty CAD patients of mean age of 60.5 years (male: female = 3.17 : 1) were studied. Using color Doppler of carotid arteries we studied the presence or absence of plaque, degree of stenosis and Intimal-Medical Thickness (IMT) of carotid arteries.

Results: Out of 50 patients of CAD 47 (94%) were having atherosclerotic changes, 22 (44%) were having plaque present in their carotid arteries, 31 (62%) had carotid IMT values more than 0.80 mm, 12 (24%) had carotid artery stenosis up to 30%, 22 (44%) had stenosis up to 50%, 10 (20%) had stenosis over 50%, 3 (6%) had stenosis over 70% and 3 (6%) had no stenosis. 19 (44.18%) of CAD patients had unilateral carotid artery atherosclerosis whereas bilateral in 28 (54.57%) cases. 38% of patients were hypertensive, 22% were smokers, 14% were diabetic and 26% were having hyperlipidemia.

Conclusion: We conclude that there is strong correlation of carotid artery atherosclerotic changes with coronary artery disease. Carotid artery IMT is a simple, non-invasive, reproducible clinical tool to evaluate atherosclerosis and predict CAD.

442. Prevalence of Obesity and Hypertension among 9th to 12th Standard Students of Government Schools Situated in Delhi, India.

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Aims and Objectives: To study the prevalence of obesity and hypertension among 9th to 12th class students of Government Schools of North Delhi.

Material and Methods: Prospective demographic study of all the students of 9th to 12th standard of three Government Senior Secondary situated in Delhi, India.

Results: Out of 50 patients of CAD 47 (94%) were having age varying from 12 to 20 years with mean age of 15 ± 1.42. Male: Female ratio was 503:19 (26.5:1). Parental income varies from Rs. 1000 to Rs. 26000 pm (5352 ± 1.58). Maximum students were found to fall in category II (Rs. 2501-5000 pm) as per income grouping.

Positive history of hypertension, CAD, Obesity and DM were found in families of 65 (12.45%), 12 (2.30%), 41 (7.85%) and 32 (6.13%) students respectively. Overweight and obesity were observed in 9 (1.72%) and students, while BMI was found to be in higher range in 10 (1.92%) students only. In our study 57 (10.92%) students were found to have high WHR (≥ 0.9).

We also observed that 42 (8.05%) and 47 (9.0%) students were having systolic and diastolic hypertension respectively as per JNC VII criteria. There was association of pre hypertension and hypertension to the positive family history for hypertension, CAD and DM.

Conclusion: Prevalence of obesity was very low among the students studying in Government schools, rather we observed lower BMI in the study group. Positive family history of hypertension, CAD and DM was associated to hypertension among siblings.

446. How Predictive is Framingham’s Risk Score in Indian Perspective

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We tried to evaluate the predictive accuracy of Framingham Risk Score in Indian perspective in a retrospective case control study. Patients were selected from amongst those who presented with STEMI or other forms of ACS having elevated enzymes (CK MB/TROP-T) and whose prior medical records were available. There were 252 patients. 212 age and sex matched controls were taken from those patients who visited out medicine OPD for various reasons but who did not have any complains pertaining to CVS having a normal ECG and denied H/O any cardiac ailment. They were analyzed as per the Framingham’s Risk Score and the predictive risk was found out. The predictive risk of the patients and the controls were compared and statistically analyzed. Both the patients and the controls were again subdivided into low, intermediate and high risk according to their risk score. As the DM is now considered as CAD risk equivalent so they were analyzed separately.

There was a statistical difference in the mean projected risk of the patients and the controls in the non-diabetic group (for both male and female), however there was no such difference found in diabetic subjects. In the non-diabetic patients with ACS only 20% were in the high-risk subset. Whereas about 40% was found both in the intermediate and low risk subsets. Hence it appears that Framingham’s Risk Score though has some predictive value, is not a very sensitive predictor for predicting ACS events in our country. Various reasons may be contributory. The increased
A prospective, multidisciplinary, open trial to assess efficacy of healthy lifestyle program (conceived and developed at Global Hospital and Research Centre, Mount Abu) in regression of atherosclerosis after 2 years and reduction in coronary events.

123 angiographically documented moderate to severe CAD patients were given healthy lifestyle program (stress management through Rajyoga, low fat high fiber vegetarian diet and moderate aerobic exercise). Assessment of various parameters and advance training in healthy lifestyle program was given at 0,6,12,18 and 24 months. All the patients were asked to undergo repeat angiography after two years.

306 coronary lesions were analyzed by a panel of two independent angiographers using electronic digimatic caliper (Mitutoyo, Japan). Overall healthy lifestyle program advance was strongly related to changes in percentage diameter stenosis of coronary artery lesions in a “dose response” manner. In CAD patients with most program adherence score (0.60-1.00), the average percentage diameter stenosis regressed from 67.81 (19.83%) to 48.93 (24.31%) over a period of two years; that is regressed by 18.88 (15.76) absolute percentage points. In contrast, CAD patients with least program adherence score (< 0.50) the average percentage diameter stenosis progressed from 70.42 (19.83%) to 48.93 (24.31%) over a period of two years; that is progressed by 9.13 (17.36) absolute percentage points.

90.90% CAD patients with most adherence showed trends towards regression of coronary atherosclerosis 63.73% of coronary lesions in these patients showed regression of more than 10% absolute percentage points.

Number of cardiac events in CAD patients with most and medium adherence combined was only 9 as compared to 35 in the patients with least adherence over a follow-up period of 4.63 (0.63) years (range 3.86-5.84 yrs); risk ratio of 5.91; over 230.6 absolute percentage points.

A protocol was taken to shift patient from the ER to the CCU was 20.2 min. 108 patients underwent primary coronary interventions (PCI). The average door to balloon time was 100 minutes. Complications such as in hospital mortality (7%), angina (9.7%), congestive cardiac failure (CCF) (10.5%) and arrhythmias (17.1) were seen, especially when the time delay to reperfusion was > 6 hours. In the post audit period the time of shift from ER to CCU thrombolysed prior to 6 hrs, 34.1% patients developed complications in per audit period while only 15.6% patients developed complications in the post audit period. This difference in complications was found to be statistically significant (p = 0.02).

Conclusion : Reducing time to reperfusion even by few minutes reduces complication rate significantly in ASTEMI (within a window period of 6 hrs).

672. Transcatheter Closure of Perimembranous VSDs

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Objective : To describe our experience of non-operative closure of peri-membranous ventricular septal defects (VSDs).

Methods : Between February and May 2004, 13 patients with perimembranous VSDs were selected for transcatheter closure using the Amplatzer perimembranous VSD closure device. Selection criteria included : perimembranous location, signs of left atrial and ventricular volume overload, weight > 8 kg and presence of least 2 mm rim below the aortic valve. Device closure was performed under general anesthesia using transesophageal echocardiographic and fluoroscopic guidance.

Results : The median age and weight was 10 years (9-20 years) and 27 kg (range 20-54 kg) respectively. The median VSD size was 6 mm (range 4-11 mm) and size of the Amplatzer device was 8 mm (range 6-16 mm). The procedure was successful in 10 of the 13 (87%) patients. The procedure was unsuccessful in 3 and 2 of them had significant aortic valve prolapse. One patient developed anaphylaxis to the contrast medium after angiography. The subsequent procedure was deferred in this patient. No major complications occurred during or immediately post procedure. Two patients developed transient right bundle branch block (complete 1, incomplete 1) after the procedure. No residual shunt was noted on echocardiography prior to discharge except in one. At 6 months follow up, all have normal ECG and residual shunt has disappeared completely. None of the patients have developed AR including 3 who had trivial AR pre-device placement.

Conclusion : Perimembranous VSDs can be closed successfully with the Amplatzer device with excellent results and without any major complications.

673. Transcatheter Closure of Secundum ASD using Amplatzer Device : Early and Follow-up Data

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Objective : To report early and follow up data of non-operative transcatheter closure of atrial septal defect (ASD) using Amplatzer device. The selection criteria were : central location, good rims, signs of right ventricular volume overload, weight > 8 kg and...
absence of severe pulmonary hypertension.

Material and Methods: During February 1999 to May 2004, thirty patients (16 females aged 2-16 years, Wt. 9-66 Kg) underwent transcatheter closure of ASD in cardiac cath laboratory using general anesthesia, fluroscopy and transesophageal (24) or transthoracic echocardiography (6).

Results: Twelve patients were < 12 years (2-12, M = 7). The median stretch diameter was 15.5 mm (range 10-27) and median size of Amplatzer device was 20.6 mm (range 12-30). The procedure was successful in 27/30 (90%). The failure was due to large (over 34 mm) defect in 1 and inadequate margins in 2. No major complications occurred during or after the procedure. Clinical and echo follow up (5-60, m=28 months), in 21 patients revealed no residual shunt, no late arrhythmias and stable position of device.

Conclusion: Secundum ASD can be successfully closed, non operatively with Amplatzer device in children and adults with excellent short and long term results.

685. Renal Angioplasty (Stenting) in Management of Renal Artery Stenosis after Renal Transplant and in End Stage Renal Disease (ESRD)

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Objective: To report short term and followup (8 to 36, mean = 20 months) data of percutaneous renal interventions (PRI) in a special subset of patients with renal artery stenosis (RAS). (Group A : Post kidney transplant 7 cases, Group B : ESRD on maintenance haemodialysis, 3 cases).

Material and Methods: There were 7 males and 3 females aged 35-58 years. In group A renal transplant was done 1-10 months (mean = 5.1) prior to referral for intervention. Clinical diagnosis of transplant RAS was corroborated by renal Doppler. Indication of PRI included accelerated hypertension (2), deterioration of renal function (2) and both (3). In group B, with ESRD bilateral ostial RAS (2) and RAS of single kidney (1) was diagnosed during coronary angiography. Renal stenting was performed to stabilize renal function prior to coronary revascularization.

Results: All group A patients had anastomatic site (70-90%) stenosis which was successfully treated by renal stenting (6) and balloon angioplasty in 1. The stent size varied from 5 x 10 mm to 7 x 15 mm (Genesis 2, Express 2, AVE - Medtronics 2). There were no complications. Immediate and sustained benefits (at 8 to 36, mean = 20 months) in reduction of blood pressure (2), improvement in renal function (2) and both (3) have been observed. Renal Doppler at 6 months (3), at 1 year (4) shows sustained patency of stents. Renal stenting in group B was performed prior to coronary bypass (2) and coronary angioplasty (1). These patients had stabilization of serum creatinine in 2 weeks at 4.8 mg% (3.1-6.4 mg%) from basal of 6.1 mg% (4-8 mg%) and permitted coronary revascularization.

Conclusion: Percutaneous renal stenting can be safely performed in these high risk patients with benefits in stabilizing blood pressure, renal function and both.

* Adjudged Best Papers and got an award of Rs. 1000/- each from Chairman Scientific Committee, Diamond APICON 2005.