

Enhanced External Counterpulsation(EECP): Shahid Ganga-lal National Heart Center experience in first nine patients.

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Background

EECP is a novel; FDA approved; non-invasive; outpatient treatment offered to patients with refractory angina pectoris (RAP). It uses sequentially inflated pneumatic cuffs on the lower extremities to enhance coronary diastolic flow. We studied its effect in eight patients with refractory angina pectoris.

Methods

All patients (n=9) who were referred for EECP to Shahid Gangalal National Heart Centre who completed a treatment course (one hour per day for 35 days) of EECP and underwent 6-minute walk test before and after treatment were included. Demographic data, coronary artery disease (CAD) risk factors and baseline angiographic data were collected. Distance covered in six minute walk test before and after the treatment was compared.

Results

All the patients who had undergone EECP had a positive clinical response. Distance covered in Six minute walk test improved in all patients after the treatment. Decrease in anginal severity, frequency and the use of sublingual nitrates, with improvement in quality of life was observed after the treatment. During the treatment some patients complained of leg pain, one patient develops blister and one ecchymosis but the treatment was not discontinued.

Conclusion

The results from these patients suggest that EECP is an effective, safe and well tolerated treatment option for the patients with RAP.

Key Word

EECP, CAD, Angina Pectoris

Predicting outcomes in patients of acute coronary syndrome using biochemical markers

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Background

Acute coronary syndrome consists of acute myocardial infarction with or without ST segment elevation and unstable angina. Cardiac biomarkers provide a convenient and noninvasive means to gain insights into the underlying causes and consequences of ACS that mediate the risk of recurrent events and may be targets for specific treatment. The role of high sensitivity C reactive protein (HS CRP) for predicting the outcome has been established in patients of acute coronary syndrome. There are studies to show the prognostic importance of estimated glomerular filtration rate. But our population differs genetically and environmentally as compared to west.

Objectives

To assess risk prediction in patients with acute coronary syndrome during the hospital stay, at 6 weeks and at 6 months period using high sensitivity C reactive protein, serum creatinine, cardiac Troponin I, creatine Kinase Total and MB levels.

Materials and methods

It was a Prospective observational study. The Primary Outcome was taken as all cause mortality. All the consecutive patients with the diagnosis of acute coronary syndrome and giving informed consent for the study were enrolled and followed up at 6 weeks and 6 months duration from the index event. Mortality and the likely cause of death were recorded along with the day since admission. The highly sensitive C - reactive protein was estimated on admission, at 6 weeks and at 6 months. The estimated glomerular filtration rate (eGFR) was calculated using the abbreviated modification of diet in renal disease (MDRD) formula at admission, at 6 weeks and 6 months. For estimating cardiac troponin I (cTnI) qualitative membrane based immunoassay was used. The levels of creatine kinase total and MB was measured on admission.

Results

There were total of 108 cases of acute coronary syndrome in duration of 6 months who completed the follow up. The study showed 44% of patients had STEMI; 41% had NSTEMI and 23% had UA. The HS-CRP level of > 5mg/dl was highly significant for predicting mortality during hospital stay and at 6 weeks ($p < 0.001$). There was 11% of in hospital mortality ($p < 0.001$). At 6 months the overall mortality was 28% ($p < 0.001$). Arrhythmias were observed in 27% patients ($p < 0.001$). Cardiogenic shock complicating STEMI resulted in high patient mortality ($p < 0.001$). There was a statistical significance with low eGFR (median eGFR 45ml/min/1.73m²) levels during the admission. Illiteracy, Smoking more than 10 pack years and diabetes mellitus of duration more than 10 years was associated with increased risk of mortality.

Conclusion

High sensitivity C reactive protein levels above 5mg/dl and the eGFR levels ≤ 30 ml/min/1.73m² was significant in predicting mortality of the patients with ACS. Age above 75 years, albuminuria detected using uristix and cardiogenic shock were also significant in predicting mortality in patients of ACS. The role of HS CRP in the primary prevention of cardiovascular adverse events needs to be widely explored.

Invasive cardiology in Eastern Nepal: An initial experience

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Introduction

The burden of ischemic heart disease (IHD) in developing countries is on the rise, due to urbanization, industrialisation and the low availability of evidence based therapies and interventions. The BPKIHS cardiac catheterization laboratory became functional since January 2011 and interventional procedures have been routinely performed since then.

Methods

A registry is being maintained for all consecutive procedures being performed in the cardiac catheterization laboratory and we sought to determine the profile of invasive procedures performed during the first 8 months of activity.

Results

A total of 141 procedures have been performed of which 114 were coronary angiographies, 33 coronary angioplasties, eighteen renal angiographies, five permanent pacemaker implantation, one renal angioplasty, three balloon mitral valvotomy, 14 temporary pacemaker insertion and eight pericardiocentesis. Normal coronaries were detected in 36 patients (36%), and 78 patients had significant CAD; of those, six (7%) were referred for a coronary bypass surgery, 39 (50%) were treated medically, and 33 were treated with angioplasty (43%). Sixteen (48%) were primary percutaneous coronary intervention (PPCI) for acute coronary syndrome. Left anterior descending artery (LAD) angioplasty was performed in 14 patients, left circumflex artery (LCx) angioplasty in 8 and right coronary artery (RCA) angioplasty in 11 patients. A total of 35 stents were used of which 17 (49%) were bare metal stents and 18 (51%) drug eluting stents. The mean contrast use during angioplasty was 140 ml and for angiography was 80 ml. The mean fluoroscopic time required for angioplasty was 18.6 minutes and for angiography was 7.2 minutes.

Conclusions

During the first 8 months of our invasive activity, the most commonly performed procedure was diagnostic coronary angiography (81% of all procedures). This was followed by revascularisation in 27% patients, 23% by PCI on-site, 4% by surgery after referral to Sahid Gangalal Heart Centre, Kathmandu. Our success rate was high and our complication rate was acceptably low. We expect the volume of procedures to continue increasing, and believe that our activity is a significant contribution to the improvement of cardiac care in Eastern Nepal.

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A Diabetic Clinic Experience from Eastern Nepal: Obesity and Cardiovascular disease assessment in diabetes patients

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Background

Cardiovascular disease (CVD) is the leading cause of morbidity and mortality in type 2 diabetes mellitus (DM). DM is a risk equivalent for coronary heart disease (CHD).

Objective of study

The aim of this study was to assess body mass index and cardiovascular risk assessment in diabetic patients.

Materials and method

This was a hospital based cross sectional comparison study conducted among the 200 consecutive diabetic out-patients from January 2010 to December 2010. Among the consenting diabetic patients of age above 14 years, cardiovascular disease risk screening done by ECG and Echocardiography. Type 2 diabetes was diagnosed based on WHO criteria and ADA guidelines 2009 respectively, and common diabetes related complications (macro-vascular and micro-vascular) were diagnosed clinically and with relevant investigations

Results

Among 200 confirmed cases of DM (101 male and 99 female), 38.5% were of age group above 60 years. As recommended for Asians (BMI ≥ 23 kg/m²) for overweight, 28.5% were overweight, 18.5% obese and 50% morbid obese. The prevalence of CVD were 13.5% and significantly associated with age, duration of diabetes, hypertension, diabetic retinopathy, metabolic syndrome, renal insufficiency, triglycerides, high-density lipoprotein (HDL) cholesterol. The most common and frequent micro-vascular complications were retinopathy (32.0%), neuropathy (24.5%), nephropathy (8.5%) and others (21.5%). About one third had hypertension (stage 1 hypertension- 19% and stage 2 hypertension 11.5%).

Conclusion

We found increasing age, duration of diabetes, hypertension, diabetic retinopathy, metabolic syndrome, renal insufficiency, raised triglycerides, decreased high-density lipoprotein (HDL) cholesterol and morbid obesity were significantly associated CVD risk factors among outpatients diabetic clinic in eastern Nepal. It was an interesting finding to see 50% of the patients being morbid obese when BMI for Asian Classification was used.

Key Words

Diabetes Mellitus, Obesity, CAD risk factors, Outpatients clinic, BPKIHS

ECMO following complex congenital cardiac surgery in children and neonates at SGNHC

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Abstract

Background

Cardiac extra-corporeal membrane oxygenation (ECMO) is used as a method for mechanical life support in the face of extreme cardiopulmonary failure after cardiac surgery. Application of ECMO following pediatric cardiac surgery varies between different institutions based on manpower availability and philosophy towards ECMO utilization. Neonatal and paediatric cardiac extra-corporeal support is a technically challenging therapy that is applied in cases of post-operative respiratory failure due to pulmonary oedema and low cardiac output syndrome. Shahid Gangalal National Heart Centre has been running ECMO programme since last 2 years.

Objectives

To present our initial experience with ECMO support in patients with respiratory failure and low cardiac output syndromes following open-heart surgery for congenital cardiac anomalies.

Methods

The charts of all pediatric and neonatal patients requiring ECMO support following cardiac surgery for complex congenital cardiac anomalies were retrospectively reviewed. Patient and ECMO characteristics were evaluated.

Results

Between 2009 and 2011, eight neonates and children were treated at our institution by ECMO following open heart surgery. Two patients were weaned from ECMO.

Conclusions

Following cardiac surgery for congenital cardiac anomalies, respiratory failure and low cardiac output, unresponsive to maximal conventional medical support, is a rare but life threatening condition. ECMO serves as a rescue mechanical support till the improvement of the function of lungs and heart for these patients and can serve as a bridge to recovery.

Assessment of left ventricular mass regression in patients treated with various antihypertensive drugs.

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Background

Left ventricular (LV) hypertrophy is a strong risk factor for cardiovascular complications and morbidity. Initial evidences suggest that whether LV mass index is reduced or progresses over time directly influences the risk of subsequent complications. Antihypertensive treatment can decrease the LV mass index; however various drugs differ in their ability to reduce it. This prospective study was designed to assess the effect of various antihypertensive drugs on LV mass index in hypertensive subjects.

Method and Materials

A cohort of essential hypertensive subjects on medicine, either on angiotensin converting enzyme inhibitors (ACE-I) or angiotensin receptor blockers (ARB) and other antihypertensive drugs except calcium channel blockers (CCB) (Group A) or on CCB and or other antihypertensive drugs except ACE/ARB (Group B) with echo proven increased LV mass index was included in the study. Their LV mass index was measured after six or more months of regular follow up.

Results

Out of 152 subjects 51(33%) met the inclusion criteria of increased LV mass index. Mean age was 55 years with male to female ratio 4:1. Mean follow up period was 10.5 months ranging from 6 to 15 months. Twenty three subjects were in group A and 23 were in group B. Mean LV mass indexes in group A and B were 127.61 and 136.14 g/m² at the time of enrollment and 117.45 and 147 g/m² at the time of follow up echo study with statistical significant regression in group A. The majority (72%) in group A had LV mass regression. In group B, only 38.5% subjects had reduction in LV mass.

Conclusion

In this study subjects treated with ACE/ARB drugs had significant regression in mean LV mass index in comparison to those without it where a progression in it was observed.

Key words

left ventricular mass index, regression, antihypertensive drugs

Cardiac Electrophysiological Study and Radiofrequency Catheter Ablation; Our Experience at SGNHC

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Abstract

Cardiac electrophysiological study radiofrequency ablation is a form of cardiac intervention for diagnosing and treating cardiac arrhythmias. Various catheters are placed in the various part of the heart to record signals and radiofrequency energy is used for the ablation.

A total of 768 patients with paroxysmal supraventricular arrhythmias underwent the procedure at Shahid Gangalal National Heart Centre in a period of October 2003 to September 2011.

The success rate is high (92%) and the complication rate is low (0.8%) which is comparable to the results shown in various literatures. This form of treatment is fairly safe and provides a definitive cure to the patients.

Key words

EPS, RFA, Shahid Gangalal National Heart Centre, Nepal

Experiences with PCI-1000 cases Jan 2002-May 2011 at Norvic International Hospital

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Objectives:

The aim of this study was to evaluate the status of the initial one thousand coronary angioplasty cases in Norvic International Hospital and their subsequent follow ups between Jan 2002 and May 2011.

Methods and Results:

Data of the one thousand percutaneous coronary intervention (PCI) patients were retrospectively analyzed after they had had been admitted in the hospital for PCI. Follow up was done at 3 months, 6 months, 1 year, 3 years and 5 years from the date of the procedure. 80.5% (805) patients were male while 19.5% (195) were female. 64.2 % were hypertensive, 46 % had dyslipidemia , 35.8 % were smokers and 33% of the patients were diabetic. There was a mortality of 0.26 % in elective cases , 1.98 % mortality in primary angioplasty cases and 8.86 % mortality in rescue angioplasty. Comparison with studies from other centres showed a similar trend worldwide.

Lightening Induced Myocarditis

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Most often, myocarditis is results from common viral infections; less commonly, specific forms of myocarditis may result from other pathogens, toxic or hypersensitivity drug reactions, giant-cell myocarditis, or sarcoidosis. We report a rare form of myocarditis caused by lightning in a ten year old girl who was brought to us in frank pulmonary edema. She was struck by lightning while sitting outside her house. She had features of acute left ventricular failure at the time of presentation. Her heart rate was 150 per minute. She had hypotension and features of pulmonary congestion. Troponin and CPK MB were significantly raised. ECG showed Sinus tachycardia. Chest Xray revealed pulmonary edema with increased cardiac size. Echocardiography revealed significant LV systolic dysfunction (LVEF 30%) with minimal chamber enlargement. She was managed with intravenous infusion of dobutamine and nitroglycerine. She also received IV furosemide and other supportive treatment. She recovered from acute LVF within 72 hours. Her tachycardia was controlled by low dose metoprolol, which she tolerated well. Detailed echocardiography done later revealed thickened left ventricular wall with full recovery of its systolic function (LVEF 60%). Patient was discharged from hospital after 8 days of admission on low dose metoprolol.

Key words

Myocarditis, Lightning, pulmonary edema.

Pseudoaneurysm of Aorta: Long term sequelae of Major Trauma

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Victims of major trauma, who may have survived the initial incident might suffer from it's sequelae later on in life. We present two such patients. 67 yrs old gentleman fell from tree 28 yrs back and presented with pseudoaneurysm of ascending aorta, aorto-bronchial fistula and diaphragmatic hernia. Another patient, 60 yrs old male had fall 48 yrs back and presented with pseudoaneurysm of proximal descending aorta. Both patients underwent successful repair of their pseudoaneurysm with cardiopulmonary bypass. Post op course was uneventful.