

National Cardiology Conference
National Heart Foundation Hospital and Research Institute
October 18-19, 2009

Topic: Hypertension

Title: Hypertension Disparities among Place of Residence: Findings from Bangladesh Urban Health Survey 2006

Author and Co-Author: Dr. Shamim Talukder¹, Dr. Shams El Arifeen², Tasnima Akter³, Khurshid Talukder⁴

Affiliation: ¹Eminence, ²International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), ³Measure Evaluation, ⁴Centre of Woman and Child Health (CWCH)

Abstract Content

Background: Like many other developing countries, in Bangladesh, due to epidemiological transition communicable diseases are decreasing whether chronic non communicable diseases are increasing. At present it has high rate of 29.9% underweight (BMI<18.5) among women and simultaneously 11.8% of urban women are overweight (BMI ≥ 25) which reflect of double burden of nutrition in Bangladesh. Thus; a survey titled “Bangladesh Urban Health Survey 2006 (UHS 2006)” was initiated to address the information gaps regarding the health implications of urban and, particularly, slum life in Bangladesh.

Survey Aims: Aims of the 2006 Urban Health Survey (UHS) were to obtain a profile of health problems and health-care seeking behavior in urban areas of Bangladesh.

Sample Frame and Sampling Procedure: The sampling frame for this study was crafted based on the “Slums of Bangladesh; Mapping and Census” 2005 and the *Mahalla* mapping. Then eight domains were selected from the six City Corporations of Bangladesh and District Municipalities (urban administrative areas are a tier below the City Corporations). From these statistical domains, 64 PSUs were selected randomly using the sample frame from the 2004 Bangladesh Demography and Health Survey From each PSU, from this master list, 25 households were selected randomly. With this calculation the overall sample for interview (8 X 64 X 25 =) was 12,800 households. And with on an average of 5.0 individuals per household the total sample for this survey was 64,000 individuals living in 12,800 households, situated in 512 communities from all over the country.

Results: With the definition of being under medication for hypertension or with high systolic blood pressure of >140 mm Hg, or with high diastolic blood pressure of >90 mm Hg; high rate of hypertension prevails among female (25% in slums and 38% in non slums). Among male, the rates were 18% in slums and 25% in non-slums. Rate of hypertension increased with age in both male and female and was more common among the wealthier and more educated men and women in both slums and non-slums. Among individuals with hypertension, female were more under medication and have normal blood pressure (48% in slums, 44% in non-slums) than male (24% in slums and 32% in non-slums). And male were more likely (61% in slums and 38% in non-slums) than female (38% in slums and 31% in non-slums) to be not using medication and having high blood pressure.

Discussion: Like many developing countries Bangladesh is passing an epidemiological transition with a shift in the major causes of death from mainly infectious diseases and nutritional deficiencies to those due

Responsibility and regular practice in Cathlab

Md. Murshed Uddin,
Chief Cath-lab Technician,
NHFH & RI, Dhaka-1216.

In the Cardiovascular Cath Lab, a cardiologist works with a multi-disciplinary team of assistants to diagnose and treat often life-threatening cardiac conditions. The organogram of a cath. lab team involves chief consultant, assistant doctor, cathlab sisters, technicians and others. Every member have contribution to developed a excellent team. The invasive cardiovascular professional demonstrates the necessary knowledge, skill and ability to perform these functions. Procedural success depends on the utilization of specialized equipments, demonstration of highest personal skill by every individual and above all a team work stirred by the chief consultant and his strength of team management.

Assessment of Myocardial Viability before Revascularization

Haque T, Kabiruzzaman M, Khan M, Nesaruddin M, Dutta AK, Dhiman B, Rahman MH, Badiuzzaman M, Ahmed N, Malik F, Ali S, Sharifuzzaman M, Ahmed F

National Heart Foundation Hospital and Research Institute

The concept of myocardial viability is based on the fact that even severely dysfunctional myocardium in patients with coronary artery disease may show functional improvement after revascularization. Reversal of myocardial dysfunction is particularly relevant in patients with depressed ventricular function, because revascularization improves long-term survival.

Multiple imaging techniques have been developed to assess viable and nonviable myocardium by evaluating perfusion, cell membrane integrity, mitochondria, glucose metabolism, scar tissue, and contractile reserve. PET, ^{201}Tl and $^{99\text{m}}\text{Tc}$ scintigraphy, and dobutamine stress echocardiography have been extensively evaluated for assessment of myocardial viability and prediction of clinical outcome after coronary revascularization. Meta analysis of studies published between 1980-97 showed a high sensitivity and specificity of all these techniques. MRI has a high diagnostic accuracy for assessment of the transmural extent of myocardial scar tissue. Precise evaluation of segmental wall thickness and echogenicity by two-dimensional echocardiography also predicts myocardial viability. Patients with a substantial amount of dysfunctional but viable myocardium are likely to benefit from coronary revascularization and may show improvements in regional and global contractile function, symptoms, exercise capacity, and long-term prognosis. A meta-analysis of papers regarding myocardial viability testing and impact of revascularization on prognosis in patients with coronary artery disease and left ventricular dysfunction, demonstrates a strong association between myocardial viability on noninvasive testing and improved survival after revascularization. Absence of viability was associated with no significant difference in outcomes, irrespective of treatment strategy.

At National Heart Foundation Hospital & Research Institute (NHFH&RI), resting 2-D echocardiography and dobutamine stress echocardiography are the imaging modalities for assessment of viable myocardium before revascularization. Surgical Ventricular Restoration (SVR) along with revascularization by CABG is recently introduced as a treatment modality for heart failure patients with post infarction dilated heart with low left ventricular ejection fraction. Echocardiography played an important role in selecting cases for SVR by providing accurate preoperative model to guide the amount of dysfunctional nonviable myocardium to be excluded. Post operative echo showed reduction in LV end-diastolic volume with improved LV ejection fraction in all of these cases which contributed to excellent early clinical outcomes.

Heart disease is the leading cause of death and morbidity in Western countries, and coronary heart disease (CHD) accounts for most cardiac deaths in both sexes¹. The prevalence of CHD is lower in women than in men in most classes of age. Prior to menopause, the incidence of CHD is considerably lower among women than men. Diabetes mellitus is a known independent risk factor for CHD and other macrovascular complications.² In the Framingham study myocardial infarction, angina, and sudden death were 2 times higher in diabetic compared to nondiabetic subjects.³ Diabetes mellitus removes the normal premenopausal gender-related differences in the prevalence of CHD. The risk of death from CHD in women with diabetes is more than 3 times that of nondiabetic women.⁴ Many factors contribute to the increase in cardiovascular disease (CVD) in diabetic person of both sexes. These include endothelial dysfunction, increased vascular oxidative stress, and abnormalities of platelet function, coagulation, fibrinolysis, and lipoproteins.⁵

What is the reason for this persistent and significant difference between women and men? One popular theory to explain the sex difference relates to HDL.⁶ HDL cholesterol levels are lower in diabetic women than in diabetic men. In fact, it has also been postulated that the inverse association between CHD and HDL levels is stronger in women than in men. For each milligram-per-deciliteliter increase in HDL, there was a ~2% decrease in CHD risk in men, but a 3% decrease in women.⁷ Other theories proposed to account for the excess risk include differences in coagulation, patterns of obesity between men and women and a possible role for hyperinsulinemia.^{8,9} There are also proponents of “higher risk factor burden” hypothesis meaning that persons who have CAD are more frequently hypertensive and diabetic than men.¹⁰

We did a prospective observational study on patients who underwent coronary angiogram in our hospital from February 2005 to June 2009. Total numbers of procedures done in the cathlab were 7104. Out of these 6707 cases were coronary angiogram (CAG). Major demographic and clinical information were kept along with angiographic findings in the database. The database was in Microsoft Access and was exported to SPSS and analyzed. In our study we used the term normal when there is no visible lesion in any of the coronary artery or their branches.

Glycemic status of 80.8% of these patient (n=5417) were known. 73.2% (n=3965) of the patients were diabetic of which 27.3% were females (n=1082). About 70% of the diabetic patients were hypertensive, 36% were overweight and 8% were obese. Over weight and obesity is more in female diabetic (54.2%) compared to (41.4%) of male diabetics.

7.2% of diabetic patients had normal CAG, 10.9% had less than 50% lesion in left main, 5% had equal or more than 50% lesion in left main, about 16% had TVD (meaning all the three major coronary arteries had more than 70% lesion) males slightly more than females.

Complicating cardiac disease Managing the major co-morbidities

Cardiac diseases are a leading and expanding cause of morbidity and mortality worldwide. The overall burden continues to grow in both developing and developed countries.

Coexisting illnesses add to the complexity of management of different cardiac conditions. Various vascular and metabolic abnormalities like cerebrovascular accidents, diabetes mellitus, renal failure pose a challenge to the physician as these conditions *per se* can contribute to the cardiac ailments as well as complicate therapeutic options.

Studies involving stroke patients with cardiac co-morbidities have shown about 30% reduction in recurrent stroke in actively treated patients. The benefit involves both ischaemic and haemorrhagic stroke, and that its size is proportional to the magnitude of the blood pressure reduction.

Elderly patients are a vulnerable group who require special attention because of possible existence of multiple organ involvement. These patients are also prone to the deleterious effects of polypharmacy.

Cardiac diseases in women range from valvular heart disease, cardiomyopathy to hypertension in pregnancy among others. Potential teratogenicity of different drugs, adverse effects on both mother and fetus are some of the pitfalls that must be actively sought and taken care of.

Hypertensive emergencies are common in clinical practice. Endocrine and renal diseases contributing to the development of this condition require individualized management strategies. Specific target organ involvement and underlying patient co-morbidities dictate appropriate therapy.

Treating risk factors like diabetes mellitus, hyperlipidemia, chronic kidney disease are as important as managing cardiovascular morbidities as these conditions lead to end-organ damage and cause more deaths than cardiac disease alone.

Quite often clinicians come across cardiac co-morbidities in peri-operative period. The incidence of cardiac complications and death increases with the presence of one or more cardiac risk factors. Importantly, post-operative instability of coronary artery disease is often silent, i.e. not associated with chest pain.

A multidisciplinary approach is required to formulate proper management strategies in these patients which, hopefully, will to a better outcome and reduced morbidity and mortality.

Prof H A M Nazmul Ahasan

FCPS, FRCP (Glasg), FRCP (Ed), FCCP, FACP (USA),

Professor,

Department of Medicine,

Dhaka Medical College, Dhaka

Prevalence of Anaemia in Patients admitted to a Tertiary Cardiac Hospital with a primary diagnosis of Heart Failure.

Kabiruzzaman M, Malik F, Ahmed N, Badiuzzaman M, Banik D, Ahmed MN, Rahman H, Tuhin Hoque, Dutta AK, Khandakar RK, Malik A.

OBJECTIVES : To find the prevalence of anemia in patients hospitalized with the primary diagnosis of heart failure(CHF).

BACKGROUND: There is growing evidence that anemia is common in HF and may contribute to the high morbidity and mortality associated with this condition. However, there is considerable disagreement about the prevalence of anemia in this condition.

METHOD: In 199 (male = 124 and female = 75) consecutive patients who were admitted to the medical wards with a primary diagnosis of HF we extracted from the charts the hemoglobin(Hb), serum creatinine, Erythrocyte sedimentation rate (ESR),age, sex, New York Heart Association (NYHA) functional class, presence of smoking, diabetes, hypertension and the primary cardiac etiology of the HF. Anemia was considered to be present when the Hb on admission was <11 g/dl.

RESULTS: All the patients were NYHA functional class III-IV. One hundred forty five patients (72.8 %) of the 199 patients had a Hb on admission that was < 11g/dl. The Hb for the entire group was 10.81 ± 1.04 g/dl. Eighty five (68.5 %) of the 124 males were anemic compared to sixty (80 %) of the 75 females. The prevalence of renal insufficiency (serum creatinine ≥ 1.5 mg %) was 52.4 % among male patients and that was 50.7 % among the females (serum creatinine ≥ 1.4 %).

General Principle, Organization & Management of Cardiac Surgical Intensive care Unit (CSICU)

Prof. Dr. M. Ahsanul Habib
FCPS (Anaesthesiology)
Consultant

Cardiac Anaesthesia & Cardiac Surgical Intensive Care Unit
Square Hospital
Dhaka, Bangladesh.

Cardiac Surgery is progressing day by day in our country. In the early eighties it was commenced in the National Institute of Cardio-Vascular Diseases (NICVD) with the closed heart surgery & later on open heart surgical procedures mainly valve replacement & some congenital heart defects like ASD & VSD repair were performed. In the early nineties CABG surgery & complex congenital heart defects repair came into the lime light. After that period in NICVD & in some private cardiac centers cardiac surgery gained the momentum & now a days almost full spectrum of cardiac surgery is possible in our country at public & private sectors.

Initially the morbidity, mortality & infection rate was high due to structural & or functional failure & lack of experience. But now there is significant development in the quantity & quality of cardiac surgical services due to the improvement in infrastructure & management. Skilled surgeons as well as skilled anesthesiologists contributed a lot to achieve the goal.

Successful out come of cardiac surgical patients also depend on efficient management in the Cardiac Surgical Intensive Care Unit (CSICU). Cardiac anesthesiologists are playing a vital role in this regard. In our cardiac centre round the clock post graduate qualified specialist anesthetist service is available & our out come is excellent interms of morbidity, mortality & infection control point of view.

This presentation is prepared highlighting the general principles, organization, & management of cardiac surgical intensive care unit of newly born square cardiac Centre.

Immediate and in-hospital outcome of congenital pulmonary stenosis patients undergoing pulmonary Valve Balloon Dilatation.

Md. Toufiqur Rahman, FCPS, MD1; Kh. Qamrul Islam, D.Card, Md, FACC1; Abdul Wadud Chowdhury, FCPS, Md2; Syed Azizul Haque, FCPS, MD, FACC, FRCP3; AAS Majumder, MD, D.Card, FACC, FRCP, FESC1

1. National Institute of cardiovascular disease, Dhaka.
2. Dhaka Medical College.
3. Dinajpur Medical College.

Aims and objectives :

To assess the immediate results of pulmonary valve balloon dilatation (PVBD) in patients with congenital pulmonary stenosis.

Methods :

56 patients with congenital pulmonary stenosis undergoing pulmonary valve balloon dilatation were studied from August, 2003 to July, 2009

Results :

56 patients with congenital pulmonary stenosis admitted in NICVD and Al-Helal Heart Institute, Mirpur were included during this period. Age group-ranged from 14 years to 48 years (Men age 20 +06.23 years)

Amongst whom male were 36 and female were 20. PVBD was done by femoral vein routes. The mean pulmonary valve annulus to balloon size ratio was 1.2. The pre PVBD echo pulmonary stenosis gradient was 114 +- 31 mmHg, Post PVBD echo was 28+-21 mmHg, Pre PVBD cath PS gradient was 119+-29 mmHg, post PVBD cath PS gradient was 32+-13 mmHg. One patient had ventricular fibrillation one patient had a systole, who were resuscitated successfully. There were no mortalities.

Conclusion:

Pulmonary valve balloon dilatation is a therapeutic procedure of choice for pulmonary stenosis patients. It yields excellent Immediate results.

Correspondence to:

Dr. Md. Toufiqur Rahman, FCPS, MD, Asst. Professor, cardiology, Room No: 334, Middle block, NICVD, Dhaka. Mobile : 01715024994, E-mail: drtoufiq1971@yagoo.com

National Cardiology Conference
National Heart Foundation Hospital and Research Institute
October 18-19, 2009

Topic: Hypertension

Title: Knowledge and Attitudes of Hypertensive Patients: Experience from “Community Based Intervention for Non-Communicable Disease People: An Initiative to Reach Door to Door in Urban Areas of Bangladesh”

Author and Co-Author: Dr. Shamim Talukder, Shusmita Khan, S.M. Shajedul Haque Palash, Dina Farhana, Golam Rabbani

Affiliation: Eminence, 3/6 Asad Avenue, Dhaka-1207, Bangladesh

Abstract Content

Context: In Bangladesh around 9.8% and 15.6% male and female living in rural settings has hypertension. In this circumstance to increase awareness and to make habitual change of identified Non-communicable Diseases (NCD) patients living in urban context of Bangladesh, Eminence took the initiative to implement a project since 2006 to prevent early complications among them as well as general community people.

Aim of the Project: The aim of the project is to increase compliance towards health services and healthy lifestyle through community based service and awareness activities among the identified NCD patients.

Project Areas and Population: Eminence is implementing its pilot project in the government housing quarter of sector 13 and 14 in Mirpur among households with around 13000 inhabitants and identified non-communicable diseases patients who were identified through a community screening.

Intervention in the Community: The intervention is given through a community based service system which is comprised of three components: Satellite Centre, Home Visit and Awareness Building Campaign.

Findings: A baseline study was initiated in the project to assess the knowledge, attitude and practice of the identified NCD patients of the project area. Then after 15 months of intervention a comparative study was conducted with the same indicators to assess the outcome of intervention. In baseline study among the 172 patients majority were from age group of 41-70 years. But in case of comparison study the majority age group shifted towards the younger group, starting from 31 to 60 years. From the baseline to comparison study the percentage of diabetic and hypertensive patients rose (40.44% to 47.6% and 76% to 82% respectively). Right knowledge (genetic, mental stress) on the probable cause of hypertension also increased from baseline to comparison study. In case of knowledge on level in blood pressure the knowledge also get increased (20.59% to 75.6%) from baseline to comparison study. Health service seeking behavior among hypertensive patients were increased from baseline to comparison study period. In baseline period 79.3% patients measured their blood pressure within last one month, and during comparison study period the percentage rose to 91.3%. In case of treatment taking for diabetes, all parameters (Medicine which has been taken within last 2 weeks, Food, exercise, smoking and diet related advise) increased from baseline to comparison study period. Regarding adherence to medication, the percentage of buying medicines monthly once increased slightly (17.23% to 19.8%). The mean systolic

Polarcath-Peripheral Dilatation System for Cryoplasty Therapy

Peripheral vascular disease (PVD) refers to the disease of blood vessels outside the heart and brain. It's often a narrowing of vessels that carry blood to the legs, arms, stomach or kidneys. Conventional angioplasty and stenting is a common treatment for PVD. But high rates of restenosis, stent fracture are the common cause of poor procedural success. Now many countries follow a newer way to open blocked arteries called Cryoplasty. Cryoplasty is a technique for treating vascular stenosis which combines balloon angioplasty with cold injury. The combination is proposed to reduce the incidence of restenosis by inhibition of neointimal hyperplasia. There have been several clinical studies which purport to show improved patency compared to conventional angioplasty.

In angioplasty, the balloon is inflated using saline solution. But in Cryoplasty, nitrous oxide is used instead of saline. As it enters the balloon, the nitrous oxide converts itself from a liquid to gaseous state. The evaporation process that results leads to a considerable decrease in temperature. This "freezing" method (the gas drops to -10 degrees Celsius) then causes a reaction called apoptosis, similar to cell self-destruction. Once the vessel is 'frozen', the body actually isolates the group of cells causing the blockage and then removes them, bit by bit. The end result is a wider passageway for blood to flow through the artery.

The PolarCath Peripheral Dilatation System delivers cryo therapy and is designed to initiate both mechanical and biological responses in order to produce beneficial vascular effects.

Compared to angioplasty, this treatment is less harmful to the walls of the affected arteries, helping to curb the amount of scar tissue build up and inflammation that can eventually lead to re-blockage and further procedures. While this is a relatively new technology, the process is very familiar to physicians who perform angioplasty and its use is rapidly spreading in hospitals across USA.

Pregnancy issues in cardiology - dark cloud over the shining sun

Pregnancy, a divine blessing of God, is the fundamental phenomenon for the continuation of human-race. During pregnancy, the health of the developing fetus is predominantly determined by the health of the mother. Several pre-existing or newly developed maternal heart diseases cast dark cloud on both maternal & fetal health and overall on the pregnancy outcome. As heart disease is one of the major causes of maternal death in Bangladesh, safety of the mother is the highest priority when treating heart diseases, although the health of the fetus should be considered too.

The maternal heart diseases pose the mother to several grave clinical conditions like – intractable heart failure, angina, thrombo-embolic manifestations, arrhythmias, syncope & sudden cardiac death. Sometimes the risk is sufficient enough to recommend avoidance or interruption (early termination or planned early delivery) of pregnancy; such cardio-vascular abnormalities are – pulmonary HTN, DCM with congestive failure, Marfan syndrome with dilated aortic root, cyanotic congenital heart diseases, Eisenmenger syndrome etc. The cardiac abnormalities that require good pregnancy counseling and close clinical follow up are – prosthetic heart valve, coarctation of aorta, Marfan syndrome, asymptomatic DCM, obstructive lesions(MS, AS, HOCM) etc.

Fetal vulnerability is also a concern in pregnancy with maternal heart diseases. As heart disease develops or worsens during pregnancy, blood is preferentially diverted away from the uterus, subjecting the fetus to an insufficient supply of oxygen & nutrients and ineffective removal of metabolic waste & heat. Diagnostic studies, drugs or surgery can also increase fatal loss, result in teratogenicity or alter fetal growth.

Management of cardio-vascular disease & maintenances of a safer pregnancy depends on a co-ordinated care, before, during & after delivery, provided by an experienced team comprising – counselors, primary care providers, cardiologists, anesthesiologists & pediatricians. Antenatal care should include a discussion of the vulnerability of women with pre-existing heart diseases; avoidance of several drugs like – warfarin, ACE-inhibitors, ARBs etc; performing diagnostic tests or interventions before the risk to the fetus becomes a factor. During 1st trimester, drug-use should be assessed, regular follow-up for worsening features in a well-equipped centre & selection of proper imaging techniques, optimal center of delivery & type of delivery is to be ensured. During 2nd & 3rd trimester, the expected hemodynamic changes associated with pregnancy like – increased plasma volume & red cell mass, increased stroke volume and left ventricular end-diastolic & systolic volumes etc, reach their peak(around 20th week). Advising women of the likely sensation of dyspnoea, regular follow-up by cardiologists & regular fetal-growth monitoring by an obstetrician is mandatory.

Vaginal delivery is usually optimal in most patients with heart diseases during labour. Assisted delivery (forceps or vacuum suction) can be considered during 2nd stage of labour considering the prolongation of the 2nd stage & severity of maternal heart disease. Induced-labour or C/S should be reserved for obstetric indications or worsening cardio-vascular function. In most cases lumbar – epidural anesthesia should be favored, over G/A, as it is least likely to result in hemodynamic compromise.

Primary PCI: Our Experience

Malik F, Ahmed N, Badiuzzaman M, Dutta AK, Banik D, Naseruddin M, Kabiruzzaman M, Rahman H, Rashid TBA, Haq TS

Reprint requests and correspondence: Prof. Dr. Fazila-Tun-Nesa Malik,
Chief Consultant Cardiologist, Dept. of Cardiology
National Heart Foundation Hospital & Research Institute, Bangladesh.
(E-mail: nhf@bdonline.com)

Background: Early 2003 thrombolytic therapy was the only reperfusion option in acute myocardial infarction in National Heart Foundation Hospital & Research Institute and also in Bangladesh. Thrombolytic therapy had the variable response in the individual patient and a large number of patients were non-responders who experienced major adverse cardiovascular events (MACE). In this scenario we tried to adopt mechanical reperfusion strategy with a team work of expert cath-lab technicians & nurses'. The initial procedural success rate was found excellent. Since then, we randomly performed primary PCI and followed them to evaluate outcome of the procedure.

Methods: We randomly assigned total 165 patients who presented with acute myocardial infarction within 12 hours of onset of chest pain between the period of Dec.2006 to Oct. 2009 undergoing primary PCI at National Heart Foundation Hospital & Research Institute to assess procedural success, in-hospital outcome and upto 6 months outcome.

Results: Procedural success was achieved in 97.58% in cases, but one patient (0.60%) had cardiac arrest during procedure and CPR & PCI procedure was continued simultaneously and ultimately we rescued the patient. Another patient (0.60%) developed tamponade during the procedure who was rescued by pericardiocentesis. 4 patients (2.42%) died in hospital, and another 3 patients (1.81%) died during follow-up. Total mortality rate was 4.2%.

Conclusion: Despite few stormy events during the procedure which were successfully & efficiently tackled by our expert team overall in-hospital outcome of primary PCI is excellent. Now it is the best available treatment option of acute myocardial infarction in our hospital.

Key words: Primary PCI, Acute myocardial infarction, Stenting.

MSCT in cardiovascular practice

Professor M A Bashar

MBBS, DMRD, FCPS

Advisor

Department of Radiology and Imaging

United Hospital, Dhaka

Bangladesh

Abstract

Introduction:

Since the introduction of computed tomography (CT) over 30 years ago, the challenge of imaging the beating heart has been a driving force in the innovation of cardiac CT. Great progress has been achieved with the introduction of 64 slice MSCT to evaluate coronary artery stenosis and plaque composition. Very recently 320 slice MSCT has been installed in few centers of US & Europe but the advantage over 64 slice MSCT has not been published.

Multislice Cardiac Computed Tomography

Basics information:

The process of (cardiac) CT can be divided into the following steps: data acquisition, image reconstruction, post-processing, evaluation and reporting, and data storage and exchange.

Current CT technology requires acquisition of data over several heart cycles to combine to form a complete coronary angiogram. Therefore, it is essential that all data be acquired or reconstructed during the same phase-of cardiac contraction.

Spiral CT acquires data continuously, while recording the patient's ECG. From the raw scan data, the ECG serves to selectively gather the scan data that were acquired during a specified cardiac phase of each heart cycle. From this isocardiophasic raw data, all reconstructed images will show the heart in the same phase of contraction. This type of image reconstruction is called retrospective ECG gating.

Motion of the coronary arteries is continuous but relatively modest during the mid- to end-diastolic phase just before atrial contraction. Also, at the end of ventricular contraction the coronary arteries can be relatively stationary, which constitutes an alternative moment for motion-sparse coronary reconstruction

To neutralize respiratory motion, the examinations performed during breath hold (5–15 s depending on the scanner). Additionally, the patient needs to be instructed not to make any other movements

A report should be based on a visual approach with clear reference to the segment with disease.

Axial and MPR images are recommended to detect non-coronary abnormalities.

In addition to the coronary arteries, the remaining cardiac anatomy also needs to be reviewed. This includes the dimensions and morphology of the cardiac cavities, the ventricular wall, the integrity of the atrial and ventricular septum, the pericardium, the aortic root, and morphological abnormalities of the cardiac valves. Reconstruction of

Impact of Right Ventricular Function in Clinical Practice

Abdullah Al Shafi Majumder
MD, FACC, FRCPE, FESC
Professor of Cardiology
National Institute of Cardiovascular Diseases
Sher-e-Bangla Nagar, Dhaka-1207.

The importance of right ventricular (RV) function has been underestimated in the past, despite its role in course of the disease and outcome of the treatment.

Clinical conditions where assessment of RV function is imperative are valvular diseases of the left heart; different congenital heart diseases; pulmonary hypertension. In the setting of acute myocardial infarction, right ventricular function is affected in more than one-third of the patients. One of the important parameters that influence the outcome of patients undergoing valve surgery, coronary by-pass graft operation or corrective and palliative procedures of congenital heart diseases is *right ventricular function*. Traditionally we implant pacing at the right ventricular apex and it is found that it results in right ventricular dysfunction with attending clinical features.

Abnormalities of RV function play an important role in the development of clinical symptoms and the overall prognosis of patients with mitral stenosis (MS). The RV function is affected either by the rheumatic process directly or through haemodynamic changes due to pulmonary vascular alterations. In the pathogenesis of the MS, RV dysfunction occurs early before the systemic venous congestion develops. Our experience in NICVD suggests that echocardiographic assessment of RV function before and immediately after PTMC may serve as a good tool for assessment of immediate outcome of PTMC in patients with MS.

RV functions cannot reliably be evaluated by conventional echocardiography techniques because of asymmetrical shape (crescentic),

Risk factors for Cardiovascular Diseases in South Asians

Dr. Sohel Reza Choudhury, World Health Organization, Bangladesh

Cardiovascular disease (CVD), which includes ischaemic heart disease and stroke, is one of the leading causes of death in both developed and developing nations. South Asians have 40–60% higher risk of CVD related mortality, compared with other populations. They have the highest risk of developing CVD at a younger age in comparison to other ethnic groups.

Smoking tobacco is an established but modifiable risk factor for CVD. Smoking causes endothelial dysfunction and precipitate coronary vasospasm. Although risk of CVD in smokers is the same in South Asians and other ethnic populations but the prevalence of smoking is increasing in South Asia. Widespread use of smokeless tobacco both in men and women also attributes to the CVD in this population. Smoking may also be responsible for the high rates of CVD in younger population.

Diabetes is a well established risk factor for cardiovascular disease. Unlike other traditional risk factors, the prevalence of diabetes (type 2) is found to be uniformly higher in South Asians than other ethnic populations. Prevalence of insulin resistance in healthy, young, lean Asian Indian men is three- to fourfold greater than lean men of other ethnic groups. Body composition of South Asians is conducive to development of the metabolic syndrome, as they have a high percentage of body fat, abdominal obesity, insulin resistance, hyperinsulinaemia and lower muscle mass. Significantly higher risk of diabetes mellitus among South Asians could be due to the so-called “thrifty gene” hypothesis, which suggests an interaction between genetic predisposition and environmental factors.

Hypercholesterolaemia is a well known risk factor for CVD, but the pattern of lipid profile in South Asians is very different from other populations. High triglyceride (TGL) concentration, low concentrations of high density lipoprotein (HDL) and increased visceral fat are more prevalent among South Asians.

Although conventional risk factors account for the majority of CVD risk, the identification of new methods of risk stratification has been an area of active research. The role of non-traditional risk factors such as lipoprotein (a) or homocysteine, which are elevated in South Asians, in causing CVD is unclear. Among these risk factors, lipoprotein (a), apolipoprotein B, homocysteine, and plasminogen activator inhibitor-1 values tend to be similar in most populations. Exposure to arsenic through drinking water may also have a role in CVD among the people living in specific geographic areas in this region. Thus, the role of this non-traditional risk factor as an important cause for CVD in South Asians is to be investigated more.

CATHETERIZATION FOR CONGENITAL HEART DISEASE:

A YEARS' EXPERIENCE AT NATIONAL HEART FOUNDATION HOSPITAL

F Malik, TS Huq, MN Ahmed, MB Zaman, N Ahmed, T Huque, D Banik, AK Dutta, K Zaman, H Rahman, AM Khan, T Rashid

National Heart Foundation Hospital and Research Institute

Background: Cardiac catheterization has long been a central diagnostic modality in the evaluation of congenital heart disease. This study was conducted on patients who underwent cardiac catheterization for congenital heart disease for both diagnostic and therapeutic purposes in National Heart Foundation Hospital and Research Institute to find out the pattern of congenital heart disease and their associations in our population.

Material & Method: This was a retrospective study from the NHF & RI invasive cardiac catheter laboratory registry that included all the 274 patients with congenital heart disease.

Result: a total of 24 types of congenital heart disease and 17 types of associated anomalies were diagnosed. Atrial Septal Defect was the commonest which was followed by Ventricular Septal defect. Tetralogy of Fallot was the commonest cyanotic heart disease. Of our study population 34% had pulmonary hypertension.

Unprotected left main stenting: our experience

Malik F, Ahmed N, Badiuzzaman M, Dutta AK, Banik D, Naseruddin M, Kabiruzzaman M, Rahman H, Rashid TBA, Haq TS

Reprint requests and correspondence: Dr. Nazir Ahmed, Associate Prof. of cardiology, National Heart Foundation Hospital & Research Institute, Dhaka, Bangladesh.
(E-mail: nhf@bdonline.com)

Background: Despite 24-hour available surgical back-up support in National Heart Foundation Hospital & Research Institute of Bangladesh once at a critical moment absence of such support due to some unavoidable reason a unprotected left main stenting was done as the life-saving procedure of a patient with very critical left main coronary stenosis and in-hospital outcome was found excellent. After that in our hospital we randomly performed stenting of unprotected left main stenosis and followed them upto 1-year to evaluate safety, effectivity & feasibility of the procedure.

Methods: We randomly assigned 41 symptomatic patients with documented ischemia having unprotected left main coronary artery stenosis on CAG, undergone percutaneous coronary intervention between May 2006 to April 2008. Patients with acute myocardial infarction, cardiogenic shock, recent stroke, renal failure and other co-morbid condition were excluded from the study. All patients undergone PCI with drug-eluting stent (DES). The primary end point was major adverse cardiac and cerebrovascular events (MACCE) during hospital stay and secondary end point was clinical outcome and assessment by non-invasive & invasive methods and also any MACCE during 1-year follow-up period.

Results: Angiographic & procedural success was obtained in 100% of cases. Isolated left main stenting was done in 30 patients (73.1%) and the rest had undergone PCI of other vessels in addition to left main stenting. All patients had excellent in-hospital outcome without any MACCE. At 1-year follow-up 2 patients (4.8%) was died due to probable LM stent thrombosis which was not proved by angiography or autopsy. 1 patient (2.4%) was needed repeat revascularization. Symptomatic improvement according to CCS classification and improvement of LV function was found in 38 patients (92.6%).

Conclusion: Unprotected LM stenting with DES was found excellent in-hospital outcome and good mid-term outcome with very minimum MACCE during 1 year follow-up. It can be a possible alternative to CABG for revascularization of LM disease.

Key Words: Unprotected left main, stenting, drug eluting stent