

Original Article

Demographic Profile, Clinical Presentation & Angiographic Findings in 637 Patients with Coronary Heart Disease.

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Abstract

Cardiovascular diseases are the commonest cause of death globally and are the major contributor to the burden of premature mortality and morbidity. This study analyses various clinical presentations, conventional risk factors, pattern and severity of coronary heart disease on angiography among 637 patients with coronary heart disease and adult congenital heart disease who underwent cardiac evaluation at National Institute of Cardiovascular Disease (NICVD), Dhaka between January 2007 to December 2008. Among them 547 (85.9%) were male and 90 (14.1%) were female. All of them were between 22 to 76 years of age with mean age 50.15±8.8. One hundred sixty nine (25.9%) patients had chronic stable angina & 398 (62.48%) patients subjected for coronary angiography for acute coronary syndrome and or old myocardial infarction and 74 (11.62%) patients with vascular and adult congenital heart disease prior to surgical treatment. Most prevalent risk factors were smoking (60%) and dyslipidaemia (60%). Thirty five percent patients were hypertensive and 10% patient had diabetes. Normal epicardial coronaries were documented in 25.59% patients which includes the patients who underwent coronary angiography prior to surgical treatment. Ninety three (14.6%) had single vessel disease, 119 (18.68%) had double vessel disease, 259 (40.66%) had triple vessel disease and 3 (0.47%) had isolated left main disease.

Key words: Coronary angiogram, Coronary artery disease.

Introduction :

Cardiovascular diseases are account for approximately 12 million deaths annually and are commonest cause of death globally. Cardiovascular diseases is also the major

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contributor to the burden of premature mortality and morbidity and accounted for 85 millions disability adjusted (DALYs) life years in 1990¹. By the year 2020, coronary heart disease and stroke will hold first and fourth places respectively, in the World Health Organization's list of leading causes of disability². Risk factors generally applies to a variable that can predict a future cardiovascular event, but some of these predictors are also potential targets for interventions. The past 50 years have witnessed great progress in identifying a number of life style, as well as biochemical and genetic, factors associated with coronary heart disease and in disseminating this information to the public³. By this time diagnostic facilities also improved dramatically in the field of coronary artery disease.

Because of progressive evolution in cardiac catheterization technique coupled with the development of effective treatment options for coronary artery disease, diagnostic coronary angiography has become one of the primary components of cardiac catheterization.

The identification of major risk factors and their effective control through population based strategies of prevention can reduce the incidence of coronary artery disease. Coronary artery disease is the greatest killer of mankind. The rise and subsequent decline in coronary artery disease epidemic in almost all industrialized country in the later half of twentieth century has been well documented¹. Significant differences in the prevalence of coronary artery disease exist with respect to gender, age and ethnicity. Cardiovascular diseases have emerged as a major health burden in developing countries⁴. Cardiovascular risk factors for ischemic heart disease and acute myocardial infarction are on the rise in Bangladesh. The study represents the clinical profile, prevalence of major risk factors among the study population & distribution & severity of coronary artery stenosis in 637 Bangladeshi patients.

Materials and methods:

This retrospective study was carried out at the department of cardiology, National Institute of cardiovascular Disease (NICVD), Dhaka, during the period of January 2007 and December 2008. The purpose of the study was to investigate the demographic, clinical characteristics, angiographic findings and risk factors of 637 consecutive patients. Coronary artery disease was diagnosed on the basis of clinical and non-invasive evaluation. Elective coronary angiography was done in patients having prior myocardial infarction, unstable angina and stable angina with positive stress ECG or prior to surgical treatment of valvular and adult congenital heart disease. Baseline demographic, clinical, risk factors and angiographic data were collected from hospital record. Atherosclerotic coronary artery disease was defined as ≥ 1 epicardial coronary segment with stenosis $\geq 25\%$ and was diagnosed visually. Only conventional risk factors parameters were assessed in this study. Patient were grouped as Single Vessels Disease (SVD), Double Vessel Disease (DVD) or Triple Vessel Disease (TVD) according to the number of stenosis of a vessel was expressed as mild ($<50\%$), moderate (50-69%) and severe stenosis ($>70\%$). The clinical presentations of patient were categorized as stable angina, unstable angina, myocardial infarction or congenital or valvular heart disease.

Results:

Table I: Demographic profile of patient

Data	Number of Patient	Percentage
Male	547	85.9%
Female	90	14.1%
HTN	222	35%
DM	63	10%
Smoking	382	60%
Dysl ipidaemia	382	60%

Table-I shows baseline demographic characteristics of the patients. Mean age was 50.15 ± 8.80 years. The age ranges between 22 years to 76 years and 85.9% were men. Smoking was the most prevalent risk factor. It was in 60% of patients. Diabetes mellitus was found in 10% patients. Hypertension in 35% and dyslipidaemia was prevalent in 60% of patient.

Table-II: Clinical characteristics of patients

Clinical characteristics of patients	No of patients	Percentage
Chronic Stable Angina	169	25.9%
Unstable angina	97	15.23%
Myocardial infarction	301	47.25%
Valvular & adult congenital heart disease	74	11.62%

Table-II shows clinical characteristics of patients. Clinical profile reveals that 169 (25.9%) patients suffered from chronic stable angina, 97 (15.23%) patients had unstable angina, 301 (47.25%) had myocardial infarction and 74 (11.62%) had valvular and congenital heart disease.

Table III: Coronary arteries involvement on angiographic finding

Angiographic findings	No	Percentage
SVD	93	14.6%
DVD	119	18.68%
TVD	259	40.66%
LM	3	0.47%
Normal CAG	163	25.59%

Table III shows coronary artery involvement on angiography. Angiographic distribution of lesion shows 93 (14.6%) patients had single vessel disease, 119 (18.68%) patients had double vessel disease, 259 (40.66%) had triple vessel disease, 3 (0.47%) had left main disease and 163 (25.59%) had normal coronary angiogram.

Table IV: Severity of stenosis on angiogram

Angiographic findings	No	Percentage
Mild ($<50\%$)	27	4.24%
Moderate (50-69%)	32	5.02%
Severe $>70\%$	418	65.6%

Table IV shows severity of coronary artery disease. Angiogram shows 27(4.24%) had mild ($<50\%$) stenosis, 32 (5.02%) had moderate (50-69%) stenosis and 418 (65.6%) had severe ($>70\%$) stenosis.

Discussion:

It is widely realized that at present developing countries contribute a greater share to the global burden of cardiovascular disease than developed countries³. The disease is very common in westernized population affecting the majority of adults over the age of 60 years. It is also rising in developing countries. This retrospective study was carried out at the department of cardiology, NICVD, Dhaka, during the period of January 2007 and December 2008. The mean age of the study population was 50.15±8.80 years as compared to 52±10.8 years in a study reported by Maqbool Jafary et al⁴ and 58±11 years by Sahed et al⁵ in Pakistan and 62±5 in COURAGE trial⁶ conducted in USA. It also correlates with the study done by Islam AEMM et al where the mean age in male was 51±9.8 and female 47.2±9.6⁷. This signifies that Bangladeshi patients are relatively younger as compared to the western people. Gender differences in coronary heart disease risk are also important⁸. Middle aged men have a 2-5 times higher risk than women. But risk ratio differs between population⁹. There was a clear male preponderance (85.9%) in the present study, which in agreement with previous studies, suggesting that it is predominantly a disease of men^{10,11}. Female represented only 14.1% of patients. Although this is a much higher frequency compared with data from India (5%)¹². All reported data show that smoking is the commonest risk factor encountered in patients with acute myocardial infarction^{13,14}. Our study has got similarity, as smoking was indeed the leading risk factor present in 60% patient. The male preponderance and smoking being the major risk factors has been well documented in many studies in this subcontinent¹⁵⁻¹⁸. However in contrast to this study smoking is not a major risk factor in the COURAGE trial (29% vs 60%)⁸. Diabetes mellitus alone was a risk factor in 10% patient and combined with hypertension and diabetes mellitus were seen in 10% patients. Diabetes mellitus is well known to have an adverse influence on the prognosis of patient with acute myocardial infarction¹⁹. Majority of the patient suffered from TVD (40.66%) which was also higher in Sridevis et al²⁰ (27.44%) and in Akanda et al²¹ (42.11%) conducted in Bangladesh. There are several limitations of the study. Medium and long term outcomes of these patients are not available.

Conclusion:

Coronary artery disease is gradually emerging as a major health challenge in Bangladesh. The rapid changes in lifestyle, unhealthy habits (smoking,

sedentary life style etc) economic development are considered to be responsible for the increase. Despite decrease in cardiovascular disease mortality in developed countries substantial increases have been experienced in developing countries. Hence large scale epidemiological study should be carried out to determine the incidence & prevalence of coronary artery disease in Bangladesh to identify the magnitude of problem and timely primary and secondary prevention strategies should be vigorously pursued.

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