Original Article

Pattern of Coronary Artery Stenosis among Ischaemic Heart Disease Cases in Chittagong

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Abstract

Many studies were conducted on the topic over the whole world but there is none in Chittagong, Bangladesh. To know the pattern of coronary artery stenosis in Chittagong we have conducted the study because it is important for effective case management. It was an observational study. Convenient sampling technique was used and sample size was fixed to 110 considering resource constraints. All the cases were diagnosed on the basis of history, clinical features and laboratory investigations. Coronary artery angiogram was methodically conducted. All relevant data had been recorded and were managed manually. The findings were validated statistically. Discussion was made with updated literature review and finally conclusion was drawn. Total 110 cases were studied. Stenosis was found in 77(70%) cases. Among them 83% were male and 17% were female. Age range was 30-80 years but 76% cases were of 40-60 years age group. Among the stenosed cases SVD 29%, DVD 20% and TVD 20% only. Only 01% was LMCA. Commonest stenosed vessel was LAD 71%. RCA 60%, LCX 58% and LMCA 6%. 47% of stenosed cases were found with normal ECG. Ejection fraction of 57% stenosed cases was >55%. Study results are not significantly apart from studies in home and abroad. The limitation is small sample size.

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So, a multicenter study on a large scale cases is hereby advocated for a conclusive opinion.

Introduction

Coronary artery stenosis is the narrowing of coronary artery due to deposition of fat in coronary artery. It obstructs blood flow to myocardium which is manifested by angina, heart failure and sudden death. The problem is attributed by modifiable and non-modifiable risk factors. Modifiable risk factors are: Diabetes mellitus, Hypertension, Smoking, Sedentary life style etc. and non-modifiable risk factors are: Age, Sex, personality type-A, Ethnicity etc.[1] Coronary artery stenosis is a global problem. It claims 30% lives in developed countries. In developing countries the problem has been increasing day by day[2]. Clinical features of the disease depends on severity of stenosis. More stenosis more severity of clinical features and in some cases patient may die without prior notice i.e in first episode. However periodic check up and screening program may predict it earlier and accordingly corrective measures can prevent premature death[3]. For diagnosis of coronary artery stenosis clinical features and supporting laboratory investigations like ECG, ETT and Echocardiography are enough. Angiogram is needed for detection of exact location and extent of stenosis[1]. Main objective of the study is to see the pattern of coronary artery stenosis among the classically diagnosed ischaemic heart disease cases in Chittagong region.

Materials and Methods

It was an observational study. The study was conducted in a private cardiac center of Chittagong during July to December 2014. Classically diagnosed IHD cases were selected for angiography (IHD diagnosis was on the basis of history, clinical features and lab investigations: ECG, Echo, ETT etc.). Patients with ejection fraction <35%, creatinine >2 mg % and of over 80 years were excluded. Angiogram was methodically done (Coronary angiography was performed by the Judkin's technique through femoral artery access). The angiographic characters include lesion location and percentage of stenosis. Interpretations of angiogram were visually estimated by 2 cardiologists. Whole procedure and findings were recorded in a pre-tested format. Sampling

technique and sample size was conveniently fixed considering resource constraints. Recorded data was managed manually. Results were contrasted with previous studies. Z-Test was used in this context.

Results

Age range was 30-80 years. 76% cases were of 40-60 years age group, 18% over 60 and 06% below 40 years age group. Male 83% and female 17%. 60% of stenosed cases were found with normal BMI. Top 3 modifiable risk factors were: Hypertension 73%, Diabetes 56% and Smoking 45%. Angiography was done in 110 cases. Among them 30% were no vessel disease (No stenosis). SVD 29%, DVD 18%, TVD 22% and LMCA 01%. Among the stenosed vessels LAD ranked first (71%). RCA 60%, LCX 53% and LMCA 6.5% respectively. ECG findings was normal among 47% of stenosed cases and Ejection fraction of 57% stenosed cases was >55%.

Table-I: Age, Sex structure of respondents

Variables	No. of cases (%)
1. Age of respondents	
< 40 years	05 (06%)
40-60 years	58 (76%)
> 60 years	14 (18%)
Total	77 (100%)
2. Sex of respondents	
Male	64 (83%)
Female	13 (17%)
Total	77 (100%)

Source: Study report

Table-II: Number of stenosed vessels

No. of stenosed vessels	Frequency (%)
Normal coronary artery (No stenosis)	33(30%)
Single vessel stenosis (SVD)	32(29%)
Double vessel stenosis (DVD)	20(18%)
Triple vessels stenosis (TVD)	24(22%)
Left main coronary artery(LMCA) stenosis	01(01%)
Total	110(100%)

Source: Study report

Table-III: Ranking of stenosed vessels

Name of stenosed vessels	Frequency (%)
Left anterior descending artery (LAD)	55(71%)
Right coronary artery (RCA)	46(60%)
Left circumflex artery (LCX)	41(53%)
Left main coronary artery (LMCA)	05(6.5%)

Source: Study report

Discussion

Age of occurrence of coronary artery stenosis, sex variation are similar (P>.05) with existing literature4 i.e 40-60 years are more risky 58 (76%) and male preponderance is there 64 (83%). Ranking of modifiable risk factors like hypertension, diabetes and smoking are a bit different with other studies. According to Nazmul and Hoque the ranking was Smoking, Hypertension, Diabetes[4]. The difference in ranking is due to site and sample variation. Present study shows Normal coronary artery 33(30%). This is significantly high (P<.05) in comparison to other studies in abroad. According to Ibrahim et al no vessel stenosis is 6.9%. This difference indicates our poor clinical assessment of patients. Rate of SVD, DVD and TVD in present study are 29%, 18% and 22% respectively. Study conducted by Ibrahim et al are 18%, 26%, and 45%. According to present study LAD 71%, RCA 60% and LCX 53% which were 42%, 32% and 26% according to Ibrahim shah et al. Significant difference (P<.05) between two studies may be due to variation of sample size (110 vs 1325), ethnicity and observer variation etc[5].

In conclusion, angiography is the gold standard test for detection of exact location of stenosis and number of vessels affected. It also shows severity of stenosis but it is not hassle free. So, case selection should be judicious considering all relevant aspects.

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