Risk factor Analysis and Angiographic Profiles in First 228 Cases Undergone Coronary Angiography in Cardiac Cath Lab of Dhaka Medical College Hospital

AEMM Islam[1], M Faruque[2], AW Chowdhury[1], HIR Khan[1], MS Haque[1], MS Ali[1], M Khan[1], PK Sharma[1], F Anar[1], MA Karim[1], MA Rashid[3]

[1] Department of Cardiology, DMCH, [2] Department of Cardiology, NICVD, [3] Department of Anatomy, Bangladesh Medical college.

Key words: *Risk factors, Coronary angiography.*

Abstract:

Background: *Coronary artery diseases are one of the major challenges faced by cardiologists. Control of certain risk factors for CAD is associated with decrease in mortality and morbidity from myocardial infarction and unstable angina. So, identification and taking appropriate measures for primary and secondary prevention of such risk factors is, therefore, of great importance. This retrospective study was carried at the newly set up cath lab in Dhaka Medical college.*

Materials and Methods: *Total 228 consecutive case undergone diagnostic coronary angiogram from 10th January 2007 to31st January 2009 out of which 194(80%) were male and 34 (20%) were female. In both sexes most of the patients were between 41 to 60 years of age. Risk factors of the patients were evaluated.*

Results: *In females commonest risk factor was Diabetes (58.8%) followed by dyslipidaemia (35.3%). In males commonest risk factor was hypertension (30.9%) followed by smoking (29.9%) and diabetes (28.3%). In males 44.3% patients presented with acute myocardial infarction followed by stable angina (43.3%); but in females stable angina was the commonest presentation (50.0%) followed by myocardial infarction (38.2%).CAG findings revealed that in males 33.5% had double vessel disease 26.8% followed by single vessel 26.8% and multivessel disease 25.3%. In females normal CAG was found in 35.5% followed by double vessel 23.5%, multivessel 20.6% and single vessel 20.6%. On the basis of CAG findings; in males 41.8% patients were recommended for CABG, followed by PTCA & stenting 26.3% and medical therapy 30.0%; where as in females 55.9% were recommended for medical therapy , followed by CABG 32.4% and PTCA & stenting11.8%.*

Conclusion: *The commonest presentation of CAD was 4th and 5th decades in both sexes. Diabetes and dyslipidaemia were more common in females whereas hypertension and smoking were more common in males. Myocardial infarction and stable angina were most common presentation in both sexes though in males myocardial infarction was more common. In males the angiographic severity of CAD was more and they were more subjected for CABG in comparison to females.*

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Introduction:

Despite steady progress in the treatment of cardiovascular diseases, people are still dying of these diseases, although at later age.[1] 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 disability.[2] 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 public.[3]By this time diagnostic facilities also

Address of Correspondence: Dr. AEM Mazharul Islam, Assistant Professor, Department of Cardiology, Dhaka Medical College & Hospital, Dhaka, Bangladesh,.E mail: drmazharul@yahoo.com

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. It is estimated that more than 1,20,000 coronary angiographic procedures are performed each year in United States. [4] In each procedure, the objective is to examine the entire coronary tree (both native vessels and any surgical grafts), recording details of coronary anatomy that includes the individual pattern of arterial distribution, anatomic or functional pathology (atherosclerosis, thrombosis, congenital anomalies, or focal coronary spasm), and the presence of intercoronary and intracoronary collateral connections. Despite gains in noninvasive techniques such as magnetic resonance angiography, and CT angiography as screening tests for coronary artery disease, the use of intravascular ultrasound and angioscope to define the status of the local vessel wall and luminal surface, and the use of intracoronary pressure and flow measurement technology to asses physiologic significance, selective coronary angiography remains the clinical "gold standard" for evaluating coronary anatomy.[1]

Though CAG is an invasive procedure but now a days it is being practiced as out patient department service in many developed centre. In our country the facilities of CAG are expanding to public and private levels. Catheterization laboratories were set up in some of the medical colleges. In Dhaka Medical College after establishment of cath Lab in 2005, it become regular functioning from January 2007. It brings the opportunity of have better management of coronary artery disease with limited facilities. We have studied first 228 cases of coronary angiogram from January 2007 to January 2009 in cardiac Cath lab of Dhaka Medical College.

Materials and Methods:

This retrospective study was carried out at the department of cardiology, Dhaka Medical College during the period of January 2007 to January 2009.All the cases undergone coronary angiogram performed in the cath lab of department of Cardiology, Dhaka medical College during this time were considered as the study population. Elective coronary angiography was done in patients having prior myocardial infarction, unstable angina and stable angina with positive stress ECG The patient's personal data including age, sex, clinical diagnosis, type of myocardial infarction and conventional risk factors (Hypertension, Diabetes mellitus, Smoking, Dyslipidaemia and family History) and coronary angiogram findings were studied.

Observation and Results:

Table-I

Age distribution of coronary angiographic patients(n=228)

Age group	Sex		Total	Percentage
	Male	Female		
Upto 30	4	0	4	1.8
31-40	22	13	35	15.4
41-50	78	10	88	38.6
51-60	61	8	69	30.3
61-70	26	3	29	12.7
71 & above	3	0	3	1.3
Total	194	34	228	100.0

Table I showed that highest percentage of patients were in the age group of 41 to 50years (38.6%) of age followed by 51 to 60 years (30.3%). Out of 228 patients 194 were male and 34 were female.

Table-II

Mean age by sex (Male=194, Female=34)

Sex	Mean	SD
Male	51.5	9.8
Female	47.2	9.6

Table II showed that the mean age in male was 51±9.8 and female 47.2±9.6

Table III

Distribution of risk factors of the patients (N=228)

Risk factors	Positive		P Value
	Male (n=194) No. (%)	Female (n=34) No. (%)	
Diabetes	55 (28.3)	20 (58.8)	0.004
Hypertension	60 (30.9)	10 (29.4)	0.85
Smoking	58 (29.9)	2 (5.9)	0.003
Dyslipidaemia	35 (18.0)	12 (35.3)	0.02
Family history	7 (3.6)	1 (2.9)	0.74

Table III showed distribution of risk factors among male and female patients. It showed that Diabetes was present in 28.3% males and 58.8% females, Hypertension was present in 30.9% males and 29.4% females, Smoking was present in 29.9% males and 5.9% females, Dyslipidaemia was present in 18.0% males and 35.3% females, and Family history was present in 3.6% males and 2.9% females. The table also showed that Diabetes and Dyslipidaemia were significantly higher in females; where as smoking was significantly higher in males. Hypertension and family history were more in males though those do not vary significantly with that of females.

Table-IV

Diagnosis of the patients by sex (n=228)

Diagnosis	Male	Female	Total	Percentage
MI	86	13	99	43.42
Unstable Angina	20	4	24	10.53
NSTEMI	4	0	4	1.75
Stable Angina	84	17	101	44.30
Total	194	34	228	100.00

Table IV shows among the total number of study most of the patients presented with stable angina (44.3%) followed by Myocardial infarction (43.4%). Most common presentation in male was Myocardial infarction and female was stable angina.

Table-V

CAG findings by sex (n=228)

Findings	Male (n=194) No. (%)	Female (n=34) No. (%)	P Value
Single	52 (26.8)	7 (20.6)	0.03
Double	65 (33.5)	8 (23.5)	
Multivessel CAD	49 (25.3)	7 (20.6)	
Normal	28 (14.4)	12 (35.3)	
Total	194	34	

Table V shows Coronary angiogram findings of patients. Most of the male patients had double vessel disease (33.5%), followed by multivessel disease (25.3%) and single vessel disease (26.8%). In females most of the patients had normal coronary artery (35.3%) followed by double vessel disease (23.5%), multi vessel and single vessel disease (7%)

Table VI

Recommendation by sex (n=228)

Recommendation	Male (n=194) No. (%)	Female (n=34) No. (%)	P Value
Medical	62 (30.0)	19 (55.9)	0.02
PTCA with Stenting	51 (26.3)	4 (11.8)	
CABG	81 (41.8)	11 (32.4)	
Total	194	34	

Table VI shows recommendation according to CAG findings. In male patients most patients were recommended for CABG (41.8%) followed by Medical therapy (30.0%) and PTCA & stenting (26.3%). In females most common recommendation was medical therapy (55.9%) followed by CABG (32.4%) and PTCA and stenting (11.8%).

Table VII

Association between CAG findings and sex (N=228)

CAG findings	Sex		Total	P Value
	Male (n=194)	Female (n=34)		
Normal	28 (14.4)	12 (35.3)	40	0.003
Abnormal	166 (85.6)	22 (64.7)	188	
Total	194	34	228	

Table VII shows out of total 228 patients 40 have got normal coronary arteries. In male it was 14.4 % and in female was 35.3% the different was statistically significant.

Discussion:

This Present retrospective study was carried out at the department of cardiology, Dhaka Medical College during the period of January 2007 to January 2009. The aim of this study is to find out the risk factors distribution and angiographic analysis in first 228 cases undergone coronary angiography in cardiology department of Dhaka medical college Hospital. Among total 228 patients 194 (85%) were male and 34 (15%) were female. Table I showed that highest percentage of patients were in the age group of 51 to 60years (38.6%) of age followed by 41 to 50 years (30.3%). Table II showed the mean age in male was 51±9.8 and female 47.2±9.6. This also correlates with the study

of Khan A R. et al [5] where they found the mean age group undergone CAG was 50.64 years. Table III showed distribution of risk factors among male and female patients. It showed that Diabetes was present in 28.3% males and 58.8% females, Hypertension was present in 30.9% males and 29.4% females, Smoking was present in 29.9% males and 5.9% females, Dyslipidaemia was present in 18.0% males and 35.3% females, and Family history was present in 3.6% males and 2.9% females. The table also showed that Diabetes and Dyslipidaemia were significantly higher in females; where as smoking was significantly higher in males. Hypertension and family history were more in males though those do not vary significantly with that of females. This also correlates with the study of Khan A R .et al [5] and Islam AEMM et al.[6] In the study done by Khan AR [5] they found smoking in 75% patients, hypertension in 43 % patient, dyslipidaemia in 28% patient diabetes in 21.8% patients and family history in 25% patients. This finding of distribution of risk factors also correlates with the study of Nasiruddin[7,] and Kabir M S.[8] Table IV shows that of the patients presented with stable angina (44.3%) followed by Myocardial infarction (43.4%). Most common presentation in male was Myocardial infarction and female was stable angina. In the study done by Islam AEMM [6] the most presentation of patients undergone coronary angiography was also myocardial infarction (69%). In the study done by Kabir M S, the most common presentation of patients undergoing CAG was myocardial infarction 46%, followed by unstable angina 36% and stable angina 18%. Table V shows Coronary angiogram findings of patients. Most of the male patients had double vessel disease (33.5%), followed by multivessel disease (25.3%) and single vessel disease. In females most of the patients had normal coronary artery (35.3%) followed by double vessel disease (23.5%), multi vessel and single vessel disease (7%) each. Table VI shows recommendation according to CAG findings. In male patients most patients were recommended for CABG (41.8%) followed by Medical therapy (30.0%) and PTCA & stenting (26.3%). In females most common recommendation was medical therapy (55.9%) followed by CABG (32.4%) and PTCA and stenting (11.8%). Table VII shows out of total 228 patients 40 have got normal coronary arteries. In male it was 14.4 % and in female was 35.3% and the different was statistically significant. The more number of normal female patients may be due to small sample size.

Conclusion:

The commonest presentation of CAD was 4th and 5th decades in both sexes. Diabetes and dyslipidaemia were more common in females whereas hypertension and smoking were more common in males. Myocardial infarction and stable angina were most common presentation in both sexes though in males myocardial infarction was more common. In males the angiographic severity of CAD was more and they were more subjected for CABG in comparison to females. As coronary artery diseases affect the most productive period of life, more preventive measures should be taken like detection and control of risk factors as well as diagnostic procedures like coronary angiogram should be performed in selected cases to plan for further definitive treatment.

Conflict of Interest - None.

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