Age and Gender wise Comparison of Risk Factors in Patients with Acute Myocardial Infarction.

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ABSTRACT

Background: Hypertension, diabetes mellitus, Hyperlipidemia, and smoking are independent risk factors for CAD in more than 50 % of population. Besides it, gender and age itself is having great impact on prevalence of Coronory artery disease (CAD) . CAD is 3 to 5 times common in male than female, and in both genders the prevalence increases with age.

Objective: To compare risk factors for myocardial infarction between both genders and younger and older age groups.

Material & Methods: This study was conducted in DHQ hospital Timergara district Dir lower. . This was descriptive cross sectional study. Sampling technique was non probability consecutive. Data was collected from january to December 2017..All patients admitted to CCU of any age and either gender as Acute myocardial infarction were enrolled in the study after taking informed consent. Patient were divided in to two age groups, age group less than or equal to 50 and more than 50 years

Results: Three hunderds and thirty one patients admitted to cardiology unit of DHQ hospital Timergara presented with acute myocardial infarction. Mean age of the study population was, 63. ± 9 (28-90). ST elevation myocardial infarction (STEMI) patients were 261(78.85%), while 70 (21.14%) patients admitted as Non ST elevation myocardial infarction (NSTEMI). Male patients were 195 (58.9%) while 136 (41.1%) were female. In gender wise comparison female were more obese and diabetics while male were more smokers. Regarding age groups younger patients were more smokers while older group was having higher frequency of hypercholesterolemia.

Conclusion: Smoking is the main risk factor in younger population and obesity and diabetes mellitus is more common in female patients presenting as acute myocardial infarction

Key words. *Hypertension, DM,obesity, CAD, risk factors*

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INTRODUCTION

Coronary Artery Disease (CAD) is the major health issue in current era and leading cause of morbidities and mortalities. CAD is considered to be the main cause of death in the United States. According to a survey over 5 million Americans are affected by CAD. In most western countries CAD is the leading cause of deaths.[1,2]

Prevalence of CAD is 7.3% in general population [3]. According to a study conducted it was found that 47 % of CAD patients are hypertensive, other important factors found were diabetes mellitus in 12.9% of CAD patients, hyperlipidemia in 90 % and smoking was found in 24 %. Furthermore it was found that 66 % patients had two or more risk factors for CAD[4]

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There are several explanations for increase incidence of myocardial infarction in older age group. First, it is known fact that hypertension, diabetes mellitus, and hyperlipidemia are more common in older age group than younger people. Second, the the duration of exposure of these risk factors are more in advancing age groups. Third, Ageing itself is associated with changes in homeostatic system, as a result balance between coagulation and fibrinolysis and tendency towards coagulation and thrombosis occurred. [5]

GRACE registry recorded higher incidence of non ST segment elevation MI (NSTEMI) in older age group[6]. Myocardial infarction and its complications are population [7]

Hypertension, diabetes mellitus, Hyperlipedemia, and smoking are independent risk factors for CAD in more than 50 % of population. Besides it, sex and age itself is having great impact on prevalence of CAD [8-10]. CAD is 3 to 5 times common in male than female, and in both sexes the prevalence increases with age.[11].

There is very limited data on this subject in our local population and specially no study done on this issue in this part of our country. This study will help to know the data on this important issue in our local population which is lacking till date.

MATERIAL AND METHODS

This study was conducted in DHQ hospital Timergara district Dir lower. This was descriptive cross sectional study. Sampling technique was non probability consecutive. Data was collected from January to December 2017. All patients admitted to CCU of any age and either sex as Acute myocardial infarction were enrolled in the study after taking informed consent. Patient were divided into two age groups, age group less than or equal to 50 and more than 50 years. Acute myocardial infarction was defined as typical chest pain with either $\geqslant$ 1 MM ST elevation in two consecutive leads (STEMI) or ECG changes of ischemia and positive troponin (NSTEMI). Anterior MI was defined as ST elevation of 1mm or more in V1 to V4 or extended from V1 to V6 , where as lateral MI was defined as ST elevation in ,V5,V6 and inferior MI was defined as ST elevation 1mm or more in two inferior leads (II,III,AvF)[12]. Hypertension was defined as history of drug treatment for hypertension or blood pressure more than 140/90 recorded at presentation[13]. Diabetes was defined as FBS more than 125, random blood sugar more than 200 mg/dl at presentation or history of drug treatment for Diabetes[14]. Hypercholestemia was defined as cholesterol level more than 200 mg/dl[15].Smoking as defined as smoking 5 or more cigarettes per day for more than 6 months[15]. Family history for CAD was defined as documented CAD in first degree relatives[15]. After thorough clinical history and examination, all patients were interviewed in detail regarding risk factors and relevant investigations were sent. Blood samples were sent to hospital labortary. Blood pressure of all patients were checked on mercury based sphygmomonometer.

Data was analyzed in SPSS version 20. Numerical variables like age was expressed in mean ± standard deviation. Categorical variables were described in frequency and percentages. Data was expressed in table . Chi square test was used to compare categorical variables. P value less than .05 was taken significant.

RESULTS

We studied 331 patients admitted to cardiology unit of DHQ hospital Timergara presented with acute myocardial infarction. Mean age of the study population was, 63 ± 9 (28-90). ST elevation myocardial infarction (STEMI) patients were 261(78.85%), while 70 (21.14%) patients admitted as Non ST elevation myocardial infarction (NSTEMI). Male patients were 195 (58.9%) while 136 (41.1%) were female. , Hypertension was found in 171 (51.7%), diabetic patients were 107 (32.3 %) Table 01, Table 02. Anterior MI were found in 146 patients (56 %), Inferior MI in 107 patients (41 %), Lateral MI in 8 patients (3 %).

Table 1. Comparison of risk factors between younger and older age group (N =331)

VARIABLES	Above 50 years			Below or 50 years			P value
	Yes	No	Total	yes	No	total	
Hypertension	153(52%)	141	294	18 (48.6%)	19	37	NS
Diabetes	96(32.6%)	198	294	11(29.7%)	26	37	NS
Smoking	40(13.6%)	254	294	10(27%)	27	37	.01
Family hx	103(35%)	191	294	12(32.4%)	25	37	NS
Hypercholestrolemia	117(39.7%)	177	294	6(16.2%)	31	37	0.004
Obesity	87(29.6%)	207	294	12(32.4%)	25	37	NS

Table 2. Gender wise comparison of risk factors in acute myocardial infarction (N =331)

VARIABLES	MALE			FEMALE			P value
	Yes	No	Total	yes	No	total	
Hypertension	93(47.7%)	103	195	79 (57.3%)	57	136	NS
Diabetes	56(28.7%)	139	195	51(37.5%)	85	136	0.03
Smoking	50(25%)	145	195	0 (0%)	136	136	.000
Family hx	65(33.3%)	130	195	50(36.7%)	86	136	NS
Hypercholestrolemia	78(38.46%)	117	195	44(32.35%)	92	136	NS
Obesity	38(19.4%)	157	195	61(44.85)	75	136	0.03

DISCUSSION

This study was conducted in DHQ hospital Timergara, a peripheral hospital of KPK where most of the cardiac patients are referred from nearby districts.

Our study shows that Myocardial infarction is common in male than female (58.9 % vs 41.1 %). Similar findings are seen in multiple studies. Iqbal MA et al[15] conducted a study in a peripheral hospital and found that most of CAD patients visit to hospital are male (59 %)

Regarding gender wise comparison of risk factors it was found in our study that most of the risk factors are same between both genders, however female was showing significantly higher frequency of obesity and diabetes mellitus. While male were more smokers than female. A study conducted in India[16] showed that diabetes (male 13%,Female 11%) and hypertension (36 % male, 37 % Female) was same in both sexes ,while female were comparatively more obese (male 57%, Female 68 %). They also found that smoking is more common in male. Contrary to our study they found that hypercholesterolemia was more common in male (37%) than female (4%). Another study conducted in Palestine[17] showed similar findings of same frequency of hypercholesterolemia and family history of CAD. This study also supports our finding of higher frequency of diabetes in female and smoking in male. Another study performed by Iqbal MA et al also supports our findings by showing similar frequency of hypertension, hypercholesterolemia in both gender and higher frequency of diabetes in female. Also they showed higher smoking rates in male gender.

A nationwide registry in korea by Cho KI et al[18] done. The registry enrolled 30 001 patients with AMI, of whom 5200 met the study inclusion criteria; 4805 patients were male and 395 were female. Current smoking was significantly higher in men, while hypertension and diabetes mellitus were significantly more common in women. The finding are similar to our findings of increase frequency of diabetes and hypertension in female and smoking in male. Another study conducted by bajaj S[19] found that hypertension and diabetes was more common in female as compare to men where as smoking was common in men, which are similar to our findings.

Regarding age groups we found that older population is having higher frequency of dyslipedemia and younger population are more smokers. Iqbal MA[15] et al also found that smoking is the main risk factor in younger population. They found hyperlipidemia more common in younger age group which is contrary to our findings. Jamee A et[17] al found that advance age group is associated with higher frequency of hyperlipidemia as compared to younger people which are similar to our findings. A study performed by Incalcaterra et al[20] showed that hyperlipidemia is more common risk factor in younger population with acute myocardial infarction and exactly similar findings were noted in our study. Another study performed by Shah N et al[21] found that younger population as compared to older who presented with acute myocardial infarction are more smoker, hyperlipidemic. They also found similar diabetes and hypertension in both groups. Similar findings were found in our study. We found higher frequency of smoking and dyslipedemia in our younger population as compared to older patients admitted as acute myocardial infarction.

Study Limitation

Our study is having several limitations. First our study is performed in patients admitted to CCU only. There are large number of patients who are either not reach to Emergency, some patients die during emergency treatment, and some patients are referred to tertiary care hospital

CONCLUSION

Smoking is the main risk factor in younger population and obesity and diabetes mellitus is more common in female patients presenting as acute myocardial infarction

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