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INCIDENCE OF CONVENTIONAL RISK FACTORS AMONG PATIENTS WITH MYOCARDIAL INFARCTION

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Abstract:

Background: *Acute myocardial infarction (MI) is potentially critical and is the most common cardiac emergency to occur in a hospital. Cardiovascular risk factors for major mortality and morbidity are increasing in Pakistan. Given the lower survival, ischemic heart disease represents an important public health problem.*

Purpose and aim: *The aim of the study is to determine the frequency of various conventional risk factors in patients with myocardial infarction and to guide our planning for primary and secondary prevention of this disease in our society.*

Methodology: *A total of 100 consecutive patients with MI aged 20 to 80 years were included in the study. A detailed history including admission symptoms was taken, and risk factors were evaluated with the help of history and laboratory examinations. The following common risk factors, namely gender, smoking, hypertension, diabetes, hyperlipidemia, family history, and obesity were examined.*

Results: *Frequency risk factors were listed as male gender (74%), smoking (70%), hypertension (62%), diabetes mellitus (60%), hyperlipidemia (44%), family history (40%), and obesity. (14%). Of these risk factors, 48% of the patients had at least one major risk factor, 23% had two major risk factors, and 29% had three or more major risk factors.*

Conclusion: *Smoking, hypertension, diabetes and hyperlipidemia were the main modifiable risk factors requiring better control in our patients. Public awareness of risk factors is low. Therefore, there is an urgent need to raise awareness about preventive aspects and healthier lifestyles in our society.*

Key words: *ischemic heart disease, risk factors, morbidity, coronary artery disease.*

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INTRODUCTION:

Risk factors for cardiovascular disease (CVD) are increasing in Pakistan. There is a definite change in lifestyle and with the increase of facilities, sedentary habits are increasing day by day. Exercise and outdoor activities seem to have declined. As a result, cardiovascular diseases such as myocardial infarction and stroke are on the rise [1-2]. India, Pakistan, Sri Lanka, Bangladesh and Nepal not only account for a quarter of the world's population, but also contribute to the largest proportion of CVD burden compared to the others country [3-4]. Among the CVDs, ischemic heart disease (IC) is the leading cause of morbidity and mortality worldwide and is likely to become the most common cause of death worldwide by 2020, including in Pakistan. IHD is an acute myocardial infarction (AMI), and the incidence of AMI is increasing in our population [5]. Myocardial infarction (MI) is the predominant consequence of atherosclerotic coronary artery disease and/or vascular occlusion due to thrombus formation. Patients with MI have multiple risk factors for IC associated with the development of coronary artery disease (CAD). Of these, some factors such as age, gender, race and family history cannot be changed and are called "fixed factors", while other important risk factors such as serum cholesterol, smoking, diabetes and hypertension can be changed [6-7]. Hypertension, diabetes mellitus, smoking and hypercholesterolemia are referred to as traditional or major risk factors for coronary heart disease (CHD). They are called conventional because most patients with coronary heart disease have one or more of these risk factors [8-9]. A recent cohort study found that the development of more than 80% myocardial infarction in the general population can be attributed to these traditional factors and physical inactivity [10-11]. In this study, we examined the frequency of conventional risk factors in patients with myocardial infarction. Our study can guide our planning for primary and secondary prevention of this disease in our society by contributing to a better understanding of the frequency of risk factors present in patients with myocardial infarction.

MATERIALS AND METHODS:

This is a cross-sectional study of 100 patients with myocardial infarction admitted to the ICU of Punjab Institute of Cardiology Rawalpindi for one year duration from June 2020 to June 2021. The work was completed in one-year. Using the non probability sampling technique, all Pakistani patients aged 20 to 80 years, including men and women with myocardial infarction, were confirmed by clinical trials and other diagnostic procedures (such as ECG and cardiac enzyme testing). The patients with other comorbid pathologies (such as brain, lungs, kidneys or other vital organ diseases) were excluded from the study. A short structured questionnaire was prepared and patients were interviewed in the ward after obtaining verbal consent. In addition to collecting basic demographic information, patients were asked about the presence of chronic hypertension and diabetes mellitus. Information about the history of smoking and ischemic heart disease in first-degree relatives was also obtained. After ten hours of fasting, blood samples were taken in the morning for lipid and glucose levels. Brachial venous blood samples were collected in EDTA tubes and immediately sent to the laboratory and centrifuged for 15 minutes at 4 °C. The serum was then analyzed for lipid profiles and blood glucose levels. All data was entered in a form. Patients were disposed of in accordance with current hospital regulations. There was no follow up. Descriptive and inferential statistical analyzes were performed in Statistical Package for Social Sciences (SPSS) version 21.0. While categorical data were presented as percentages and graphics, descriptive and frequency distribution were used for quantitative analysis.

RESULTS:

Results obtained in this way showed that there were more men (74%) than women (24%) in 100 patients. The mean age observed was 50.8 (SD ± 9.6) and most patients were over 40 years of age. First of all, the most common risk factor was smoking. About 70% of the subjects were smokers, but none of the women had ever smoked. The second most common risk factor in our patients was hypertension; about 62% were hypertensive. It was seen that 60% of the subjects were diabetic and women were more diabetic than men.

Table 1: *Descriptive statistics of associated Risk factors of myocardial infarction (MI).*

Var iables	*N = 100*	*Relative Frequency*
Males	74	0.74
Females	26	0.26
> 40 years age	80	0.80
Smokers	70	0.70
Hypertensives	62	0.62
Diabetics	60	0.60
Hyperlipidemics	44	0.44
+ve Family History	40	0.40
Obesity f	14	0.14
1 major risk factor	48	0.48
2 major risk factors	23	0.23
≥ 3 risk factors	29	0.29

Serum levels of total cholesterol and triglycerides (in mg/dl) were recorded. Mean cholesterol concentration was 186 mg/dl (SD ± 44.84), mean triglyceride concentration was 251 mgdl (SD ± 33.9). Hyperlipidemia is defined as serum triglyceride levels ≥ 150 mg/dl according to the American Heart Association guidelines, so we found that 44% of our cases were hyperlipidemic. A positive family history was observed in 40% of the cases and was more prominent in women. Obesity was not significant, only 14% of the patients in our study were obese, that is, BMI was over 30 kg/m2. This sum of risk factors is further illustrated in the table below, which shows that the majority of patients, i.e. 48 patients, had at least 1 major risk factor, 23 patients had 2 major risk factors, and 29 patients had ≥ 3. main risk factors. risk factors.

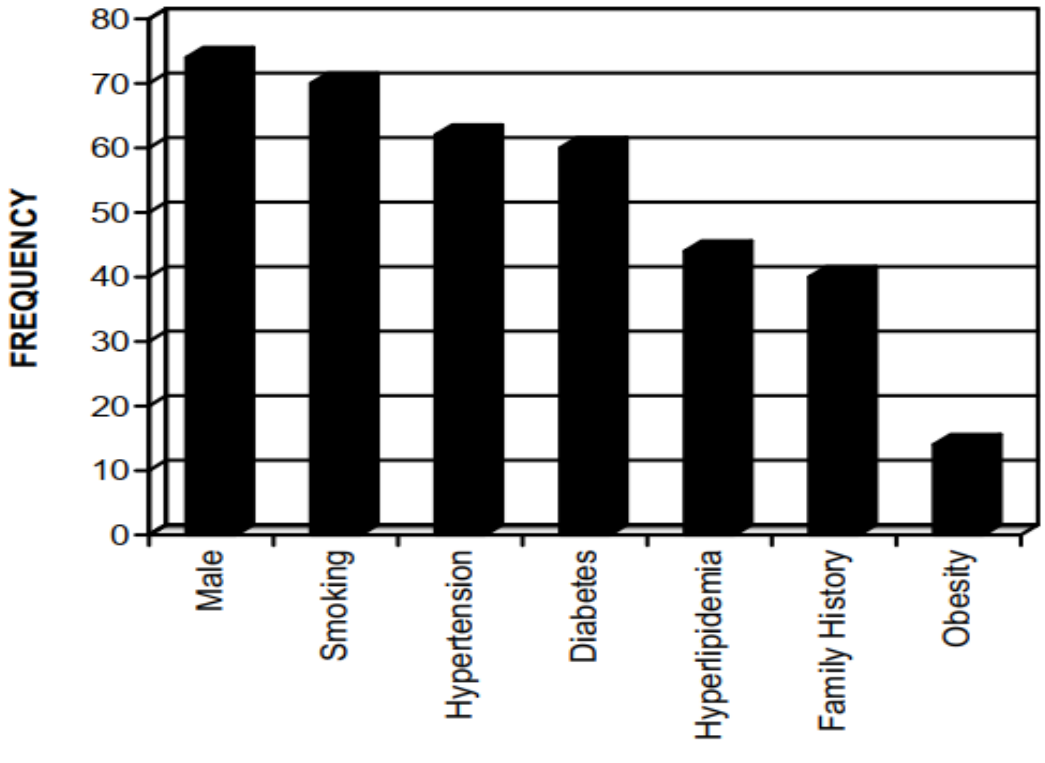

Fig. 1: *Frequency of Risk Factors of MI.*

DISCUSSION:

Coronary artery disease remains one of the leading causes of death and has a huge social and economic impact. It has been reported that IC is more common in the younger age group in recent years, but the risk definitely increases with age [9-10]. According to the results of Faisal et al., there is a linear relationship between age and IC risk; Since 80% of the patients are over the age of 40, these results are similar to our study. Lloyd-Jones et al. reported that the risk of developing CAD up to the age of 40 is 50% in men and 33% in women. In our study, 74% of the patients were male. Our finding of male dominance is consistent with previous studies. Having a family history of CAD increases the risk of early coronary events. Recent results have shown that this risk may be higher in women than in men. Our study showed that 40% of the patients had a positive family history, these results were close to the results of Faisal et al., who showed that 32% of their patients had a positive family history. The patients had a family history of coronary artery disease. The difference in results may be due to the difference in the selected age group. More than half of young Pakistani men with IC smoke. Our study showed a very high percentage (70%) of smokers. These results were similar to previous studies conducted in Pakistan and India, respectively [11]. Because smoking is the most important preventable cause of CAD. Therefore, we support the conclusion of educating all patients after myocardial infarction about the critical role of smoking in the development of coronary artery disease. Smoking cessation classes should be offered to help patients quit smoking after a heart attack. Hypertension is a well-known risk factor for adverse cardiovascular outcomes, IHD-related mortality, stroke, and sudden death. We reported that 62% of the patients were hypertensive. These results were close to the results of Butt et al., who reported that 54% of their patients were hypertensive. Diabetes mellitus is also an important risk factor for IC. McKeigue et al. reported early onset of CD in glucose-intolerant South Asian men and found that 60% of the patients in our study were diabetic [12-13]. These results were slightly superior to previous studies by Faisal et al, Akhtar et al, and Gandapur et al, who reported that 28%, 14%, and 35.7% of their patients were diabetic, respectively [14-15]. The results of our study were different because in these studies, mostly young patients, that is, below 40 years of age, were selected and our patients were not treated for this reason (most of them) with low socioeconomic status. and appropriate drugs due to socioeconomic problems. Dyslipidemia is one of the main risk factors for modifiable IC. Akhtar et al and Faisal et al reported dyslipidemia in 63.2% and 62% of patients, respectively [16-17]. In our study, 44% of the patients had dyslipidemia. According to Gandapur et al. The reason for the increased prevalence of dyslipidemia is unknown, but genetic factors and dietary habits (high ghee intake) appear to be important. Obesity is an independent risk factor for CAD in both men and women. Losing weight is associated with favorable changes in lipid profile and blood pressure and therefore reduces the risk of IC. In our study, only 14% of the patients were obese. These results are consistent with Faisal et al., who reported 17% obese patients in their study [18-19]. Our study has some limitations. First, the sample size was small, but even with this sample size, we were able to demonstrate the prevalence of important risk factors in Pakistani patients using very large sample sizes in Western countries. Second, the decision whether a patient had a history of hypertension, diabetes, and smoking, other than hyperlipidemia, was based on patient self-report. While not the best method, it is reliable. We assume that using self-reports to measure these variables will not produce results very different from those obtained using more complex techniques, for example, physical examination and laboratory studies.

CONCLUSION:

It was concluded that smoking was the most common risk factor in our patients, followed by hypertension, diabetes, hyperlipidemia, positive family history and obesity. 29 percent of patients in our study had 3 or more risk factors. These risk factors appear to be responsible for a significant burden of myocardial infarction disease. These require better control. Public awareness of risk factors is low. Therefore, there is an urgent need to raise awareness in society about preventive aspects and a healthier lifestyle.

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