



FREQUENCY OF IN HOSPITAL MORTALITY IN PATIENTS OF ACUTE MYOCARDIAL INFARCTION WITH METABOLIC SYNDROME

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ABSTRACT

OBJECTIVE: To determine the frequency of in-hospital mortality in patients of acute myocardial infarction with metabolic syndrome.

MATERIAL AND METHODS: A prospective, cross sectional, single centred, randomized trial conducted from March 2014, to February 2015, 165 patients with acute myocardial infarction and metabolic syndrome in Punjab institute of cardiology were included in the study. Patients of either sex presented with acute myocardial infarction and fulfilling inclusion criteria of metabolic syndrome were taken. Patients were followed up during their hospital stay for seven days to see mortality. The impact of metabolic syndrome with Acute myocardial infarction in hospital outcomes is recorded.

RESULTS: A total number of 165 patients were studied. 15.76% patients died during hospital stay who presented with acute myocardial infarction with metabolic syndrome.

CONCLUSION: In-hospital mortality is higher among patients of metabolic syndrome presenting with acute myocardial infarction. So, it is recommended that every patient who presents with myocardial infarction with metabolic syndrome should be given priority for intensive care and early coronary intervention with aggressive risk factors modification.

KEY WORDS: Metabolic syndrome, Acute myocardial infarction, Acute coronary syndrome, In-hospital mortality frequency.

INTRODUCTION:

The term acute coronary syndrome refers to any group of clinical symptoms compatible with acute myocardial ischemia and covers the spectrum of clinical conditions ranging from unstable angina to non-ST-segment elevation myocardial infarction (NSTEMI) and ST-segment elevation myocardial infarction (STEMI).¹

Metabolic syndrome is a cluster of cardiovascular disease risk factors characterized by abdominal obesity, raised fasting blood glucose, elevated triglycerides, reduced high density lipoprotein cholesterol (HDL-C) and hypertension.²

The metabolic syndrome is a predisposing factor for endothelial dysfunction and atherosclerotic cardiovascular disease.³

Literature showed that high risk patients of ischemic heart disease are at more risk of developing metabolic syndrome. In a study done by Sandhbir B. Parsad et al. in Australia showed prevalence of

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metabolic syndrome in patients of acute myocardial infarction was 49%.⁴

One study by Madrid-Miller A et al. has reported the prevalence of in-hospital mortality was 11.6% in patients of acute myocardial infarction with Metabolic syndrome.⁵ Metabolic syndrome is an independent risk factor for myocardial infarction.

Early identification and risk factor modification in Pakistani population can prevent devastating outcome which is myocardial infarction. Complications in myocardial infarction with metabolic syndrome are more as compared to without metabolic syndrome. So during risk factor stratification for early aggressive intervention, patients with metabolic syndrome should be given top priority.

MATERIAL AND METHODS:

A prospective, cross sectional, single centred, randomized trial conducted from March 2014, to February 2015, 165 patients with acute myocardial infarction and metabolic syndrome in Punjab institute of cardiology Lahore, Pakistan. Patients of either sex presented with acute myocardial infarction and fulfilling the inclusion criteria of metabolic syndrome were included in the study. Acute myocardial infarction (MI) and metabolic syndrome (MS) were defined according to standard

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operational definitions. Patients history, examination, ECG and lab tests were performed. Informed consent was obtained from each patient admitted in the cardiology department of PIC, Lahore. Demographic details (name, age, sex, contact) were obtained. Patients were followed up during their hospital stay for seven days to see mortality. All this information was recorded.

Data was entered and analyzed through SPSS 17. Descriptive statistics such as means and standard deviations were used to summarize quantitative variables while categorical variables were summarized using frequencies and proportions. Students 't' test and 'chi' square test were applied for comparison where appropriate. A p value of ≤ 0.05 was taken as statistically significant.

RESULTS:

Results were compiled after studying the specific variables. 165 patients of myocardial infarction with metabolic syndrome were selected after fulfilling the inclusion criteria in this study.

Age distribution of the patients was done which showed that 38.18%(n=63) were between 30-50 years of age while 61.82%(n=102) were between 51-80 years of age, mean \pm sd was calculated as

Table-1: Age distribution(N=165)

| Age(in years) | No. of patients | % |
|---------------|-----------------|-------|
| 30-50 | 63 | 38.18 |
| 51-80 | 102 | 61.82 |
| Total | 165 | 100 |

Table-2: Gender distribution (N=165)

| Gender | No. of patients | % |
|--------|-----------------|-------|
| Male | 76 | 46.06 |
| Female | 89 | 53.94 |
| Total | 165 | 100 |

Table-3: Frequency of in-hospital mortality in patients of Acute Myocardial Infarction with metabolic syndrome (N=165)

| In-hospital mortality | No. of patients | % |
|-----------------------|-----------------|-------|
| Yes | 26 | 15.76 |
| No | 139 | 84.24 |
| Total | 165 | 100 |

Table-4: Frequency of in-hospital mortality in patients of Acute Myocardial Infarction with metabolic syndrome with regards to age (n=26)

| Age (in years) | In- hospital Mortality | P value | |
|----------------|------------------------|---------|------|
| | Yes | No | |
| 30-50 | 9 | 54 | 0.68 |
| 51-80 | 17 | 85 | |

Table-5: Frequency of in-hospital mortality in patients of Acute Myocardial Infarction with metabolic syndrome with regards to gender (n=26)

| Gender | In- hospital Mortality | | P value |
|--------|------------------------|----|---------|
| | Yes | No | |
| Male | 16 | 60 | 0.08 |
| Female | 10 | 79 | |

54.85 \pm 12.75 years. (Table No. 1)

Patients were distributed according gender, 46.06%(n=76) were male and 53.94%(n=89) were females. (Table No. 2)

Frequency of in-hospital mortality in patients of acute myocardial infarction with metabolic syndrome was recorded in 15.76%(n=26) while 84.24%(n=139) were not died during hospitalization. (Table No. 3)

Stratification for frequency of in-hospital mortality in patients of acute myocardial infarction with metabolic syndrome with regards to age was done, where out of 26 in-hospital mortality cases, 9 were between 30-50 years of age and 17 were between 51-80 years, p value was 0.68. (Table No. 4)

Stratification for frequency of in-hospital mortality in patients of acute myocardial infarction with metabolic syndrome with regards to gender was done, where out of 26 in-hospital mortality cases, 10 were male and 16 females, p value was 0.08. (Table No. 5)

DISCUSSION:

The metabolic syndrome (MS) has been shown to be a powerful and potentially modifiable risk factor for coronary artery disease as well as diabetes⁶⁻⁸ There is limited data on the prevalence of MS in patients with acute myocardial infarction (AMI) utilizing contemporary definitions.⁹ Early identification and risk factor modification in Pakistani population can prevent devastating outcome which is myocardial infarction. Complications in myocardial infarction with metabolic syndrome are more as compared to without metabolic syndrome. So during risk factor stratification for early aggressive intervention, patients with metabolic syndrome should be given top priority.

As the metabolic syndrome is getting epidemic worldwide due to sedantary lifestyle, so it is necessary to encourage balanced diet and monitor blood lipid levels.

In our study, out of 165 cases, 38.18%(n=63) were between 30-50 years of age while 61.82%(n=102) were between 51-80 years of age,



mean age was calculated as 54.85 ± 12.75 years, 46.06%(n=76) were male and 53.94%(n=89) were females. Frequency of in-hospital mortality in patients of acute myocardial infarction with metabolic syndrome was recorded in 15.76%(n=26) while 84.24%(n=139) were not died during hospitalization.

Our findings are in agreement with a study by Madrid-Miller A et al which reported the prevalence of in-hospital mortality was 11.6% in patients of acute myocardial infarction with Metabolic syndrome.⁵

Another study by S. Pandey et al¹⁰ compared the in hospital mortality in patients with and without metabolic syndrome. Their results initiated that in metabolic syndrome patients in-hospital mortality was more (5/22) as compared to without metabolic syndrome group (3/62).

Zeller M and colleagues assessed the relative influence of each of the components of the National Cholesterol Education Program (NCEP) Adult Treatment Panel (ATP) III definition of metabolic syndrome on the risk of death and heart failure, they recorded that among the 633 patients, 290 (46%) fulfilled the criteria for metabolic syndrome.¹¹ Mostly patients with metabolic syndrome were advanced age and women, similar to the findings of our study.

Incidence of severe heart failure (Killip class >II) and high in-hospital mortality was found in patients with metabolic syndrome than without metabolic syndrome. Metabolic syndrome was a statistically significant predictor of severe heart failure and in-hospital mortality and concluded that metabolic syndrome appeared associated with worse risk of severe heart failure development.

LIMITATIONS:

The limitation of our study was that we analyzed only in-hospital mortality and not the other outcome like heart failure.

We found limited local data on this subject; however, the results of our study may draw attention of health professionals to prevent the sequelae of metabolic syndrome by early intervention, and hence will reduce the mortality.

CONCLUSION:

The frequency of in-hospital mortality is high among patients with acute myocardial infarction with metabolic syndrome. So, it is recommended that every patient who presents with myocardial infarction with metabolic syndrome should be given intensive care and early intervention with aggressive risk factors modification. However, it is also required that every setup should have their surveillance in order to know the frequency of the problem.

Author's Contribution

MFM: Wrote the article. MAA: Collected the data. SA: was consultant in-charge of the study and gave frequent advice.



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