DOI: https://doi.org/10.53350/pjmhs22163775

ORIGINAL ARTICLE

Incidence of Cardiogenic Shock Among Acute STEMI Cardiac Patients

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ABSTRACT:
Coronary Artery disease is a serious health issue affecting both men and women thus becoming the leading cause of death globally.
Aims: To determine the frequency of cardiogenic shock in patients with acute ST elevation myocardial infarction.
Study Design: Cross-sectional comparative study.
Methodology: All newly diagnosed acute ST elevation MI patients were included. Detailed history followed by detailed clinical examination was done. ECG and urinary output were measured to detect ICS. All this information was recorded on Performa.
Statistical analysis: Data was analyzed using SPSS version 25. Cardiogenic shock was stratified among age and gender by applying chi square test.
Results: Age as mean ± SD was 60 ± 1.26 years. Males were 68% while females were 32% enrolled in present study. Results showed that only 10% patients had cardiogenic shock while 90% were without it.
Conclusion: It was concluded that the frequency of cardiogenic shock was low (10%) in patients with acute ST elevation myocardial infarction.
Keywords: Cardiogenic Shock, Myocardial Infarction and Mortality.

INTRODUCTION

Coronary Artery disease is a serious health issue affecting both men and women thus becoming the leading cause of death globally. Even in developed western countries, there is a strong association between socioeconomic position and outcome of myocardial infarction (MI) as proven by many researches. It has been found that this disease mainly affect persons from lower socioeconomic status due to many reasons like stress.[1] Due to its high mortality and morbidity rate, it remains the major target for cardiovascular therapeutics. As documented previously by researchers that because of 30-days mortality and re-hospitalization rates due to acute MI has propelled strategy makers to take logical, regional and national quality care initiatives.[2,3] This disease is a known risk for Asian especially Pakistanis due to its high prevalence.[4] According to one estimate, nearly 100,000 patients had acute MI in Pakistan in 2002.[5]

There are numerous reasons for infarction-related Cardiogenic shock (ICS) but more commonly, left-ventricular pump failure led to its development in 10% patients[6,7]. Death from acute MI is due to infarction-related cardiogenic shock in 30-80% cases.[6] Early treatment of ICS included revascularization, shock resuscitation and prevention of multi organ dysfunction syndrome (MODS) if it arises. Treatment for MODS is the major determinant of ICS outcomes.[8]

Guidelines and literature review revealed that rapid diagnosis with treatment initiation and augmentation of cardiac output improves organs reperfusion. Thus it can reduce mortality if applied appropriately.[9]

The risk of a recurrent myocardial infarction decreases with strict blood pressure management and lifestyle changes, chiefly smoking cessation, regular exercise, a sensible diet for those with heart disease, and limitation of alcohol intake. People are usually commenced on several long-term medications post-MI, with the aim of preventing secondary cardiovascular events such as further myocardial infarctions, congestive heart failure or cerebrovascular accident (CVA). Mortality from cardiogenic shock still remains high as documented previously that fewer than 50% patients with cardiogenic shock survive up to one year.[8] MI is very common in our population and a variety of complications are observed in patients with MI including heart blocks, arrythmias and shocks so due to lack of local data, we planned current study.

Objectives: To determine the frequency of cardiogenic shock in patients with acute ST elevation myocardial infarction.

METHODOLOGY

Present study was conducted Cardiology Unit, Hayatabad Medical Complex, Peshawar. All newly diagnosed patients (35-65years) who had acute ST segment elevation MI were included. Detailed history followed by detailed clinical examination was done. ECG and urinary output ware measured to detect ICS. Patients with previous MI, conduction abnormalities including BBB on medical records, cardiac interventions and having renal failure were excluded. All this information was recorded on Performa.

Statistical Analysis: The analysis was carried out using SPSS-25. Categorical variables (gender & cardiogenic shock) were presented as frequencies and percentage (%) while age was presented as means ± SD. Chi square test was applied to see age effect on ICS with P-value < 0.05 as significant.

RESULTS

Total 139 patients were enrolled. The patients mean age was 60+ 1.26 year. Patients were distributed in three groups according to their age brackets. Other parameters like gender and cardiogenic shock was presented as frequency and percentage (%) in Table-1.

Table 1: Parameter Of All Subjects (n=139)

Variables	Groups	Frequency	Percentage (%)
Gender	Males	95	68
	Females	44	32
Cardiogenic Shock	Yes	14	10
	No	125	90
Age (yrs)	35-45	17	12
	46-55	44	32
	56-65	78	56
	Mean + SD	60+ 1.26	

Stratification of cardiogenic shock with respect to age was given in Table-2. Insignificant p-value was noticed.

Table 2: Stratification Of Cardiogenic Shock According To Age (n=139)

Cardiac Shock	35-45 (yrs)	46-55 (yrs)	56-65 (yrs)	Total	P-value
Yes	2	4	8	14	0.9495
No	15	40	70	125	

DISCUSSION

Our study showed that age (mean ± SD) was 60 ± 1.26 years. Males were 68% while females were 32% enrolled in present study. Only 10% patients had cardiogenic shock while 90% were without it. Our Results were in line with many previous studies that showed left-ventricular pump failure as a major cause of ICS.[6,7]

Present study enrolled 56% patients of age range (56-65yrs) followed by 32% patients having age range from above 46-55 years. Our enrollment method and percentages into age groups

were in line with results of research done by one researcher[10] who enrolled 50% patients aged (61-70 yrs) followed by 42% patients aged older than 70 years.

In present study, 68% were male patients while 32% were females. This gender distribution was similar as done in another study who had 65% males followed by 35% females.[11] This signifies that Pakistani patients are relatively younger as compared to the West. Gender differences in coronary heart disease risk are also important.[12]

This study showed that only 10% patients had cardiogenic shock while 90% were without it. Similarly, lower incidences of ICS with ST elevation myocardial infarction were documented as 6-8% in patients older than 50 years of age.[13,14]

Limitations: Our study had limitations like financial constraints, lack of resources, genetic workup and short duration of study.

CONCLUSION

It was concluded that the frequency of cardiogenic shock was low (10%) in patients with acute ST elevation myocardial infarction.

Authors' Contribution: ZUA: Conceptualized the study, analyzed the data, and formulated the initial draft.

AUA: Contributed to the proof reading.

MAK: Collected data.

Acknowledgements: I am thankful to Allah and all my colleagues for their help.

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