ORIGINAL ARTICLE

Complications Associated to High TIMI Score in Patients with Acute ST Elevation Myocardial Infarction

MAHBOOB UR REHMAN[1], FARHAN FAISAL[2], AMJAD ABRAR[3], AMJAD ALI SHAH[4], MUHAMMAD SHOAIB[5], MALIK ALI RAZA[6]

[1,2]Assistant Professor, Cardiac Centre Pakistan Institute of Medical Sciences, Islamabad
[3]Associate Professor, Cardiology department, Gomal Medical College Dera Ismail Khan
[4]Senior Medical officer, Cardiology Department, Saidu Teaching Hospital, Swat
[5,6]Registrar Cardiology Pakistan Institute of Medical Sciences, Islamabad
Corresponding author: Dr Mahboob ur Rehman, Email Address: drmehboobfcps@yahoo.com, Cell No. 03339229552.

ABSTRACT

Objective: To determine the complications associated to High TIMI risk score among patients presented with acute ST elevation myocardial infarction.

Study Design: Cross sectional

Place & Duration: Study was conducted at Cardiac Centre of Pakistan Institute of Medical Sciences (PIMS), Islamabadfor duration of 6 months from January to June, 2020.

Methods: Total 290 patients of both genders with ages 35 to 80 years presented with acute myocardial infarction were included in this study. Patients detailed medical history including age, sex and residence were recorded. Thrombolysis in Myocardial Infarction (TIMI) risk score was calculated for each patient. Follow up was taken during the hospital stay and after discharge. Complications were recorded on follow-up. Data was analyzed by SPSS 21.0.

Results: From all the patients high TIMI score was found in 34.48% patients. Out of 100 patients 70% were male and 30% were females with mean age 54.25+12.65 years. According to the high TIMI score 100 (34.48%) patients had score above 8 and 190 (65.52%) had score less than 8. Complications were recorded ad Ventricular fibrillation, VT, AF, Heart block, cardiogenic shock and pulmonary edema in 17%, 13%, 2%, 7%, 24% and 24% patients respectively.15% patients were died during hospital stay. 28% patients had post infarct angina, 9% patients had stroke and 28% patients treated revascularization.

Conclusion: We concluded from this study that frequency of high TIMI score is high in our setting and we patients with increase score had high risk of complications and mortality.

Keywords: High Thrombolysis in Myocardial Infarction, Acute ST Elevation Myocardial Infarction, Frequency, Complications, Mortality.

INTRODUCTION

Globally, ST elevation myocardial infarction (STEMI)is one of the most common life threatening malignant heart disorder with high rate of morbidity and mortality. In developing countries the incidence rate of myocardial infarction is high as compared to developed countries [1-2]. According to the previous studies conducted in Pakistan reported 1 out of 5 patients with ages 40 and above had coronary artery disease [3]. There is a high burden of heart diseases in developing countries and this contributes the high rate of mortality due to cardiovascular diseases.

In STEMI patients the most commonly risk is thrombolysis in myocardial infarction risk score [4-6]. TIMI risk score in STEMI patients is stratified as high risk score above 8. The patients with TIMI score above 8 considered as high TIMI risk score and these patients have a high risk of morbidity and mortality [7-8]. Many of studies illustrated that the patients with high TIMI risk score above 8 had high rate of complications. Patients with ST-elevation acute myocardial infarction (STEMI), for whom early therapeutic options are welldefined, risk stratification has a great impact on late and early treatment modality decision making [9].

High TIMI risk score is directly associated to high rate of complications and deaths in patients with ST elevation myocardial infarction during hospital stay and at 1 year after high TIMI risk score evaluated. [10-11]. Present study was conducted aimed to examine the prevalence of High TIMI risk score and complications associated to this malignant disorder in patients presented with acute ST elevation myocardial infarction.

METHODS

This study was conducted at Cardiac Centre Pakistan Institute of Medical Sciences (PIMS), Islamabadfor duration of 6 months from January to June, 2020. In this study total 290 patients of both genders with ages 35 to 80 years presented with acute myocardial infarction were included. Patients detailed medical history including age, sex and residence were recorded after taking written consent. Patients with history of previous myocardial infarction, patients with surgery of coronary artery bypass, patients with renal failure and not interested patients were excluded from study.

All the patients were clinically diagnosed to examine the frequency of high TIMI score. Complications were recorded during hospital stay till the discharge time. Mortality associated to high TIMI risk score was examined.

All the statistical data was analyzed by SPSS 21.0. Mean standard deviation was applied. Frequency and percentages were calculated to analyze the values.

RESULTS

From all the patients high TIMI score was found in 34.48% patients. Out of 100 patients 70% were male and 30% were females with mean age 54.25+12.65 years. According to

the high TIMI score 100 (34.48%) patients had score above 8 and 190 (65.52%) had score less than 8.

Table No 1. Frequency of high TIMI score among all patients

TIMI Score	Frequency No.	Percentage
<8	190	65.52
>8	100	34.48

Out of all the patients who had high TIMI score we found ventricular fibrillation in 17 (17%) patients, 13 (13%) patients had VT, atrial fibrillation was found in 2 (2%) patients, complete heart block was found in 7% patients, 24 (24%) patients had cardiogenic shock, pulmonary edema was found in 24 (24%) patients, 28% patients had post infarct angina, 9% patients had stroke and 28% patients need revascularization.

Table 2: Complications recorded during hospital stay and at discharge and at 7th day after discharge.

TIMI Score	Frequency No.	Percentage
Mean Age years	54.25+12.65	
Gender		
Male	70	70
Female	30	30
Complications		
ventricular fibrillation	17	17
VT	13	13
atrial fibrillation	2	2
complete heart block	7	7
cardiogenic shock	24	24
pulmonary edema	24	24
post infarct angina	28	28
stroke	9	9
revascularization	28	28

From all the patients 15 (15%) patients were died during the hospital stay and in which 3 patients had TIMI score 9-10 and 12 patients had TIMI score 11-12. (Table 3)

Table No 3. Mortality associated to high TIMI score

Characteristics	Frequency No.	Percentage
Mortality		
Yes	15	15
No	85	85
Correlation with TIMI score		
9 to 10	3	3
11 to 12	13	13

DISCUSSION

Acute ST elevation myocardial infarction is one of the most common cardiovascular disease found all over the world [12]. In South Asian countries the frequency of high TIMI score in patients with acute myocardial infarction was high as illustrated in many previous studies and mortality rate is accounted 10 to 20% in those patients who had increase TIMI risk score [13-15]. Many of studies was conducted aimed to examine the frequency of high TIMI score in acute myocardial infarct patients. The present study was also conducted to examine the prevalence of high TIMI score in STEMI patients. In our study total 290 patients with ST elevation myocardial infarction were included to examine the high TIMI risk score. Out of 290 patients we found 100 (34.48%) patients had TIMI score above 8 and 190 (65.52%) patients had score less than 8. These results

were correlates to some previous studies in which the frequency of high TIMI score was reported 30 to 40% [16-17].

In present study, from all the high TIMI score patients majority of patients were males 70% followed by females 30% with mean age 54.25+12.65 years. A study conducted in Pakistan showed similarity regarding male patients' population in which male patients were high in number 64.5% as compared to females 31.84% with mean age 56.71± 10.00 years [18]. In our study we found ventricular fibrillation in 17 (17%) patients, 13 (13%) patients had VT, atrial fibrillation was found in 2 (2%) patients, complete heart block was found in 7% patients. These results were comparable to some previous studies [19-20].

In this study 24 (24%) patients had cardiogenic shock, pulmonary edema was found in 24 (24%) patients, 28% patients had post infarct angina, 9% patients had stroke and 28% patients need revascularization. A study conducted by Kashif et al [18] reported 24% patients had cardiogenic shock, 27.3% patients had pulmonary edema and 24.8% patients need revascularization.

In present study, 15 (15%) patients were died during the hospital stay and in which 3 patients had TIMI score 9-10 and 12 patients had TIMI score 11-12. We observed that the increase of TIMI score was highly correlates with morbidity and mortality. These results showed similarity to many other studies in which patients with high TIMI score found to had high rate of complications and mortality [21-22].

CONCLUSION

Acute ST elevation myocardial infarction is most commonly found cardiovascular disorder. We concluded from this study that frequency of high TIMI score is high in our setting and we patients with increase score had high risk of complications and mortality.

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