

Determine the Prevalence of High Thrombolysis in Myocardial Infarction (TIMI) Risk Scores and Complications Associated to High TIMI Score in Patients Presented with Acute ST Elevation Myocardial Infarction

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ABSTRACT

Objective: To determine the prevalence of high thrombolysis in myocardial Infarction (TIMI) risk score and complications associated to high TIMI risk score among patients presented with acute ST elevation myocardial infarction.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Cardiology, Mayo Hospital, Lahore from January 2018 to December 2018.

Materials and Methods: A total of 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. 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

Results: From all the patients high TIMI score was found in 34.48% patients. There were 70% males and 30% females with mean age 54.25 ± 12.65 years. High TIMI score 100 (34.48%) patients had score above 8 and 190 (65.52%) had score less than 8. Complications were 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: Frequency of high TIMI score is high in our setting and we patients with increase score had high risk of complications and mortality.

Key Words: Myocardial infarction, Acute ST Elevation, Frequency, Complications, Mortality

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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

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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 well defined, 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.

MATERIALS AND METHODS

This study was conducted at Department of Cardiology, Mayo Hospital, Lahore from 1st January 2018 to 31st December 2018. A total of 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. Patients with history of previous myocardial infarction, patients with surgery of coronary artery bypass, patients with renal failure and not interested patients were excluded. 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. The data was analyzed using SPSS-20.

RESULTS

From all the 290 patients, high TIMI score was found in 34.48% patients. Among them, 70% were males 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 1).

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

TIMI Score	No.	%
≤8	190	65.52
>8	100	34.48

Table No.2: Complications recorded during hospital stay and at discharge and at 7th day after discharge (n=100)

TIMI score	No.	%
Mean age (years)	54.25±12.65	
Gender		
Male	70	70.0
Female	30	30.0
Complications		
ventricular fibrillation	17	17
VT	13	13
Atrial fibrillation	2	2.0
Complete heart block	7	7.0
Cardiogenic shock	24	24.0
Pulmonary edema	24	24.0
Post infarct angina	28	28.0
Stroke	9	9.0
Revascularization	28	28.0

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). Fifteen (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

Variable	No.	%
Mortality		
Yes	15	15.0
No	85	85.0
Correlation with TIMI score		
9 to 10	3	3.0
11 to 12	13	13.0

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 patient's 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 the current 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 Iltaf et al¹⁸ 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

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 patients with increased score had high risk of complications and mortality.

Author's Contribution:

Concept & Design of Study: Khawaja Adnan Younis

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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