



Incidence of Cardiogenic Shock in Acute Stemi Patients Thrombolysed with Streptokinase

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Abstract

Introduction: *Thrombolysis therapy in randomized controlled trials has shown to improve the natural history of acute myocardial infarction with approximate 30% reduction in mortality. Non-invasive detection of reperfusion is an useful guide for future management. Resolution of ST segment elevation following thrombolytic therapy has been shown to be a simple and useful predictor of left ventricular function and clinical outcome. Reduction in ST segment elevation, relief from chest pain, early peaking of serum concentration of creatine kinase and reperfusion arrhythmias are some of the non-invasive markers of reperfusion.*¹

*Farrer M et al. suggested that previous studies have shown an association between each resolution of ST elevation after thrombolysis and improved coronary patency and clinical outcome.*² *Thrombolytic therapy for acute myocardial infarction reduces case fatality and improves clinical outcomes.*^{5,6}

Material and Methods: *We conducted cross sectional observational study in 200 patients of acute ST segment elevation myocardial infarction. Outcome of early (within 6 hours) and late (after 6 hours) thrombolysis in patients of STEMI studied and compared.*

Results: *About the complication after receiving thrombolytic therapy 37 % were in cardiogenic shock, 27.5 % land up in CCF, 15% showed arrhythmias. most of cases 85 (42.5 %)ST segment resolution > 50% were seen where there is initiation of therapy before 6 hours, whereas only 41 (20.5%) of cases shows improve ST segment > 50% after 6 hours of initiation of therapy.*

Conclusion: *Complication like cardiogenic shock were significantly less in patients thrombolysed within 6 hours of onset of chest pain compared to those who thrombolysed after 6 hours.*

Introduction

Thrombolysis therapy in randomized controlled trials has shown to improve the natural history of acute myocardial infarction with approximate 30% reduction in mortality. Non-invasive detection of reperfusion is an useful guide for future management. Resolution of ST segment elevation following thrombolytic therapy has been shown to be a simple and useful predictor of left ventricular function and clinical outcome.

Primary goal of therapy in ST elevation myocardial infarction has been to restore normal blood flow in the occluded epicardial coronary artery as rapidly as possible. Early and sustained patency of infarct related artery is necessary, to ensure optimal outcome of reperfusion therapy. So optimal goal of reperfusion therapy is to establish nutrient blood flow at tissue level.

Reduction in ST segment elevation, relief from chest pain, early peaking of serum concentration

of creatine kinase and reperfusion arrhythmias are some of the non-invasive markers of reperfusion.¹ Farrer M et al. suggested that previous studies have shown an association between each resolution of ST elevation after thrombolysis and improved coronary patency and clinical outcome.² Since 1987 Anthon K et al. work on critical role of coronary thrombosis in acute myocardial infarction has been confirmed. This provides the scientific basis for thrombolytic therapy, the advent of which has been the cause of much global excitement and revolutionized the treatment of AMI.³

In acute myocardial infarction, early identification of patients at a high mortality risk is important for planning further therapeutic strategies. Previous studies have demonstrated that the extent of early resolution of ST-segment elevation may represent a simple, quick and noninvasive assessment to identify high risk groups of patients.⁴

Thrombolytic therapy for acute myocardial infarction reduces case fatality and improves clinical outcomes.^{5,6}

By contrast, ST segment resolution 90–180 minutes after thrombolysis is an excellent marker of successful myocardial reperfusion⁷ and a strong predictor of survival and preservation of left ventricular function.⁸⁻¹⁰

In most regions in the world in general, and in Europe in particular, thrombolytic therapy is still the fastest and best accessible reperfusion treatment for most patients presenting with acute STEMI, as indicated in the international guidelines.¹¹⁻¹²

The thrombolytic agent used in our study is streptokinase.

Material and Methods

A cross sectional observational study at a tertiary healthcare hospital. The study was conducted after formal approval from institutional ethics committee. The study was conducted with 200 patients of acute STEMI including diagnosed cases of Acute ST elevated myocardial infarction as per WHO criteria requiring at least 2 of

following 3 elements to be present. 1. History of ischemic type of chest pain (resting chest pain lasting for more than 30 minutes). 2. Evolutionary change on serially obtained ECG tracings (at least 2 mm in adjacent chest leads and/or ST segment elevation at least 1 mm in 2 or more standard leads). 3. A rise of serum cardiac markers. Patients who are eligible for the study and who received streptokinase and patients above 18 years of age excluding patients Below 18 years of age, Those patients who are not willing, Patients with recent history of stroke, active bleeding, recent major operation, recent non compressible vascular puncture, previous treatment with streptokinase and patient those who have contraindication for thrombolytic therapy.

The demographic features of patients were recorded which included age, sex, date admission, date of discharge, date of death. Baseline screening process and recording done including Detail clinical history, Thorough clinical examination, Routine blood investigation-blood group, complete blood count, kidney function test, liver function test, blood sugar level, lipid profile Electrocardiogram (ECG).

Procedure of data collection: After applying inclusion and exclusion criteria total cases were studied. Data was collected from cases with proforma on admission till discharge from ICCU or death. Detailed case proforma used which is already validated by department faculties for entering all details of patient. After written valid informed consent of patient and her relatives, case proforma filled with all details like basic demographic data name, age, sex, clinical features on arrival, previous significant histories contributing to the present condition (DM / HTN / H/o old MI), habits like smoking / alcoholism are recorded. After initial diagnosis, details regarding the status of the patient on admission with respect to vitals, killip's classification and ECG.

The samples were categorized by using blood pressure by using American college of cardiology / American heart association hypertension guidelines.

Analysis of data is done using SPSS Inc., (Statistical Program for Social Science Inc.,) Chicago, IL, USA, version 20. Qualitative variables were expressed as frequency and percentage. Chi-square test, Logistic Regression, ANNOVA was used to compare qualitative variables. Level of significance "P" value was evaluated, where P value < 0.05 was considered statistically significant. Multivariable logistic regression analysis was done to identify independent risk factors for mortality.

Results

A study of early & late thrombolytic therapy in patients with acute STEMI studied in 200 cases. Data were analysed using computer based SPSS software by frequency, percentage etc. The p-value < 0.05 was considered as statistically significant.

Table 1: Distribution of cases according time of initiation of therapy

n =200

S.N.	Time	No. of cases	Percentage
1	< 6 hours (Early)	108	54.00
2	> 6 hours (Late)	92	46.00

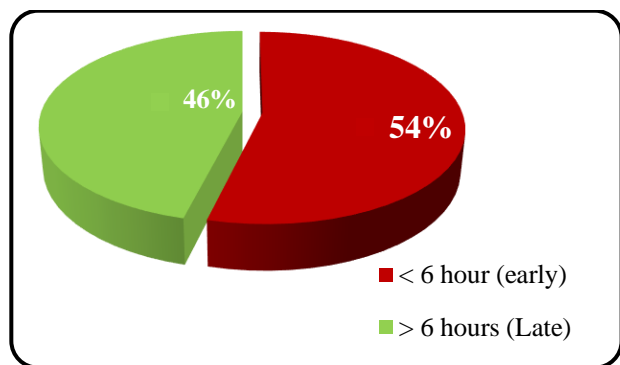


Fig. 1: Cases acc. to time of thrombolytic therapy

In present study of 200 samples maximum number of cases 108 (54 %) were received thrombolytic therapy before 6 hours from attack of AMI, whereas 92 (46 %) cases were received therapy after 6 hours from initial attack of AMI.

In present study of 200 samples, maximum number of cases 74 (37%) went in cardiogenic shock in spite of thrombolytic therapy.

Table2: Correlation of individual complication with ST segment resolution

n = 200

Complication	ST segment resolution		Odds ratio	95% confidence interval	p-value
	< 50%	> 50%			
Cardiogenic Shock	39 (19.5 %)	35 (17.5 %)	0.35	0.19 – 0.63	0.001
CCF	26 (13.07 %)	29 (14.57 %)	0.54	0.29 – 1.02	0.057
Arrhythmias	16 (8 %)	14 (7 %)	0.45	0.21 – 0.99	0.048

In present study of 200 samples, correlation between complication and ST segment resolution shows that in ST segment resolution > 50% shock 35 (17.5%) was seen in most of cases followed by CCF 29 (14.57%). Similarly in ST segment resolution < 50% shock 39 (19.5%) was seen as most of cases followed by CCF 26 (13.07%).

It was found that there was significant correlation between ST segment improvement and complication such as CCF, arrhythmias and shock (p < 0.05).

In present study of 200 samples, correlation between complication and time of initiation of thrombolytic therapy shows that in < 6 hrs. of initiation of therapy shock 23(11.5%) was seen. Similarly in initiation of thrombolytic therapy shows that in > 6 hrs. of initiation of therapy shock 32(16%) was seen as most of cases

It was found that there was significant correlation between of initiation of therapy and complication such as cardiogenic shock (p < 0.05).

Discussion

About the complication after receiving thrombolytic therapy 37 % were in cardiogenic shock.

Table 3: Complication

Study	Present study	Schroder et al. ⁸	Anders on et al. ¹³	Karthik S. ¹⁴
Year	2019	1995	2002	2014
Place	--	Germany	USA	Tamilna du
Sample size	200	6010	2352	60
Study type	observatio nal	Prospecti ve	GUSTO -III TRIAL	Cross sectional
Cardiogen ic Shock	37 %	2.6 %	2.2 %	0 %

Conclusion

Complication like cardiogenic shock were significantly less in patients thrombolysed within 6 hours of onset of chest pain compared to those who thrombolysed after 6 hours.

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