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OUTCOME OF THROMBOLYSIS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION IN TERTIARY HEALTH CARE CENTRE

General Medicine

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ABSTRACT

Background: Acute myocardial infarction (AMI) is one of the most common diseases among the developing countries. It is commonly known as a heart attack, which occurs when there is a sudden block in blood flow in one or more of the coronary arteries and this cut off blood supply to a part of the heart muscle, causing necrosis (massive cell death, a permanent damage). **Methods :** Study setting: Department of General Medicine at our tertiary care centre Study population: Patients with chest pain and ECG findings of ST segment elevation Study period: From January 2021 to June 2022 Study design: Cross sectional Descriptive observational study Sample size: All the cases fulfilling the eligibility criteria and during the study period January 2021 to June 2022 were planned to include Sampling technique: Simple Random sampling method. **Result :** The present Cross sectional descriptive observational study was carried out in Department of General Medicine at our tertiary care centre from January 2021 to June 2022 involving 150 patients with chest pain and ECG findings of ST segment elevation. The objective of our study was to study the outcome and complications of thrombolysis in patients with acute myocardial infarction. Thrombolysis was unsuccessful in 53 cases i.e. 35.3%.Successful thrombolysis occurred at 2 hours in 65 cases i.e. 43.3% Successful thrombolysis occurred at 1.30 hours in 28 cases i.e. 18.7% Successful thrombolysis occurred at 2.30 hours in 4 cases i.e. 2.7% **Conclusion:** In terms of deaths and discharges it was found that, less is the time between the onset of symptoms and thrombolysis better are the results. Out of total deaths, 73.5% of deaths occurred in 12-16 hours between onset of symptoms and thrombolysis whereas no death occurred when time of onset of symptoms and thrombolysis was 0 to 4 hrs.

KEYWORDS

INTRODUCTION

Acute myocardial infarction (AMI) is one of the most common diseases among the developing countries.[1] It is commonly known as a heart attack, which occurs when there is a sudden block in blood flow in one or more of the coronary arteries and this cut off blood supply to a part of the heart muscle, causing necrosis (massive cell death, a permanent damage). If the block is severe, the heart can stop beating (cardiac arrest). This is most commonly due to occlusion or blockage of a coronary artery following the rupture of a vulnerable atherosclerotic plaque which is an unstable collection of lipids (cholesterol and fatty acids) and white blood cells (especially macrophages) in the wall of an artery. Myocardial infarction usually begins in the endocardium and spread towards the epicardium. [2,3,4,5]

The incidence of myocardial infarction in the world varies greatly. In the United States and United Kingdom, nearly 650.000 and 180.000 patients get an acute myocardial infarction every year, respectively.[6] Worldwide, more than 3 million people have STEMIs and 4 million have NSTEMIs.[7] Indians are four time more prone to AMI as compared to the people of other countries due to a combination of the genetic and lifestyle factors that promote metabolic dysfunction.[8] The incidence of myocardial infarction in India is 64.37/1000 people.[9] The mortality rate of myocardial infarction is approximately 30% and for every 1 in 25 patients who survive the initial hospitalization, dies in the first year after AMI. [8] In India, 31.7% of deaths occur due to myocardial infarction. Incidence of cardiovascular diseases was about 7% in 1970 and increased upto 32% in 2011 in India.[10]

Abnormalities in the 12-lead electrocardiography (ECG) are often used to localize the anatomic site of myocardial infarction and ischemia in patients with coronary artery disease. This practice is based largely on autopsy series correlating the site of myocardial infarction with the location of Q-waves on ante-mortem ECGs. Q-waves in the precordial Leads V1–V4 appear to reflect anterior wall infarction; in Leads II, III, and aVF inferior wall infarction; and in Leads I, aVL, V5, and V6 lateral wall infarction. The same ECG findings are often assumed to correlate with coronary artery anatomy as well. Anterior wall infarction is usually attributed to disease of the left anterior descending (LAD) coronary artery. Inferior wall infarction is attributed to disease of the right coronary artery (RCA) except in patients with left- dominant systems and lateral wall infarction in whom it is due to disease of the left circumflex (LCX) coronary artery. Unfortunately, there is only limited documentation for these correlations between the location of coronary artery narrowing or occlusions and the findings of Q-waves during myocardial infarction, thus tending to compromise the predictive value of ECG.[11]

OBJECTIVES

- To study the outcome of thrombolysis in patients with acute myocardial infarction
- To study the complications of thrombolysis

RESULTS

We included total 150 patients with confirmed diagnosis of AMI in our study. Majority of the patients were from 51-60- and 61-70-years age group i.e. 72(48%) each. This is followed by 5(3.3%) from above 70 years age group.

61.3% were males and 38.7% were females in our study.

Majority of the cases were from rural area i.e. 70% and remaining 30% were from urban area Symptomatology revealed that majority had chest pain 86.7% followed by sweating 50.0%, vomiting 33.3%, breathlessness 26.7%, palpitation 13.3% and syncope 6.7%.

50(33.3%) were cigarette smokers, 30(20%) were tobacco chewers and 31(20.7%) were alcoholics.

Comorbid conditions in our study population were as follows: Dyslipidemia 46.7%, Previous H/O MI 40%, Hypertension 36.7% Obesity 36.7%, Diabetes 16.7%, Family H/O IHD 16.7%, Previous H/O stroke 10% and Previous CABG/angioplasty 6.7%.

In 26.7% cases raised JVP and basal crepts were found.

Hepatomegaly seen in 13.3% cases
ECG findings revealed that in all the patients STEMI was present in all 150 patients followed by right bundle branch block in 16.7% cases and ventricular tachycardia in 6.7%.

Prevalence of anterior type of infarction in our study was 56.7% followed by anterolateral and inferior type of infarction 16.7% each and posterior type of infarction 10%.

Successful thrombolysis was taken as >50%resolution of the worst ST segment at 180 mins, <50% resolution at 180 mins is termed as unsuccessful thrombolysis

Thrombolysis was unsuccessful in 53 cases i.e. 35.3%.
Successful thrombolysis occurred at 2 hours in 65 cases i.e. 43.3%
Successful thrombolysis occurred at 1.30 hours in 28 cases i.e. 18.7%
Successful thrombolysis occurred at 2.30 hours in 4 cases i.e. 2.7%
Thrombolysis was successful in 97 patients out of 150 that corresponds to 64.7% and in 53(35.3%) cases it was not successful
Incidence of death in our study was 22.6%.

Out of 34 deaths, majority were from 61-70 years age group i.e. 19(55.9%) followed by 13(38.2%) from 51-60 years age group. Out of 116 survived cases, majority were from 51-60 years age group i.e. 59(50.9%) followed by 53(45.7%) from 61-70 years age group. This difference in the proportion of deaths and survived was not statistically significant (p>0.05). It means there was no association of outcome with age group in our study.

Proportion of male deaths were 70.6% as compared to 58.6% survivals. Proportion of female deaths were 29.4% as compared to 41.4% survivals. This difference in the proportion of deaths and survived was not statistically significant (p>0.05). It means there was no association of outcome with gender in our study.

Proportion of deaths with anterior infarct were 66.8% as compared with 54.2% of survivals. Proportion of deaths with anterolateral infarct were 17% as compared with 16.7% of survivals. Proportion of deaths with inferior infarct were 17% as compared with 16.7% of survivals. Proportion of deaths with posterior infarct were 0.8% as compared with 12.5% of survivals. This difference in the proportion of deaths and survived was not statistically significant (p>0.05).

In terms of deaths and discharges it was found that, less is the time between the onset of symptoms and thrombolysis better are the results. Out of total deaths, 73.5% of deaths occurred in 12-16 hours between onset of symptoms and thrombolysis whereas no death occurred when time of onset of symptoms and thrombolysis was 0 to 4 hrs.

Outcome in terms of deaths and discharges – Out of total 150 patients, 97 patients were reverted (Successful thrombolysis occurred) and 93 of them were discharged and only 4 deaths occurred whereas 53 patients who were not reverted (Unsuccessful thrombolysis) 30 patients died and only 23 were discharged.

Complications of thrombolysis revealed that majority of the patients had hypotension i.e. 11.3% followed by allergic reaction in 9.3%, Ventricular arrythmias in 3.3%, Bleeding in nose, stool, urine or bruising in 2% and angioedema in 0.7%.

Table 1: Distribution According To Type Of Infarction

		Frequency	Percent
Type of infarction	Anterior	85	56.7
	Anterolateral	25	16.7
	Inferior	25	16.7
	Posterior	15	10.0
	Total	150	100.0

Table 2: Distribution With Respect To Successful And Unsuccessful Thrombolysis

		Frequency	Percent
Time and thrombolysis	1 hr 30 mins	28	18.7
	2 hrs	65	43.3
	2 hrs 30 mins	4	2.7
	Unsuccessful thrombolysis	53	35.3
	Total	150	100.0

Table 3: Association Of Outcome With Time Between Onset Of Symptoms And Thrombolysis (hours)

		Death		Discharge		Total	p
		Number	%	Number	%		
Time between Onset of symptoms and thrombolysis	0 to 4	0	0.0	11	9.5	11	0.0001 Highly significant
	4 to 8	2	5.9	48	41.4	50	
	8 to 12	5	14.7	37	31.9	42	
	12 to16	25	73.5	20	17.2	45	
	> 16	2	5.9	0	0.0	2	
	Total	34	100.0	116	100.0	150	

Table 4 : Distribution Of Cases According To Complications Of Thrombolysis

		Frequency	Percent
Complications	Allergic reactions	14	9.3
	Bleeding in nose, stool, urine or bruising	3	2.0
	Angioedema	1	0.7
	Ventricular arrythmias	5	3.3
	Hypotension	17	11.3

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