HYPOTENSION ON PRESENTATION AS A PROGNOSTIC FACTOR IN ACUTE CORONARY SYNDROME

Medicine

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ABSTRACT

INTRODUCTION: Coronary heart disease (CHD) is the major cause of death in developing countries like India. Acute Myocardial Infarction (AMI) is the most important form of CHD. Cardiogenic Shock (CS) is a dreaded clinical condition with a high mortality rate of 50 - 80% in patients of CS due to acute myocardial infarction. It is an established fact that inpatients with CS, complicating acuteMI, one year survival is better in those receiving early revascularisation versus initial medical stabilization; however, data demonstrating longterm survival was lacking.

METHODOLOGY: 60 Cases of Acute Coronary Syndrome (ACS) presented as cardiogenic shock and 60 patients with Acute coronary Syndrome (ACS) without shock admitted in GGH from September 2015 to September 2016.

RESULTS: In present study majority of patients presented with anterior wall MI (33% in MI without CS group; 41% in MI with CS group). overall incidence of ventricular tachycardia was 22.5% as compared to retrospective study incidence of arrhythmias (13% to 19%). Elderly age, Obesity, Delayed presentation to hospital, Past history of IHD , High TIMI risk score on presentation and unsuccessful thrombolysis drastically increase the risk of cardiogenic shock in patients with M.I. Incidence of mortality in present study is 13.33% in MI without CS group and 68.33% in MI with CS group, which directly states that cardiogenic shock is strongest predictive risk factor for patients of MI.

KEYWORDS

Cardiogenic Shock, Acute Coronary Syndrome, Myocardial Infarction

INTRODUCTION

Cardiogenic shock is the most common causeofdeath inpatientsw i t h acutemyocardial infarction (AMI) and has a frequency of around 7-10%. It continues to cause significant mortality despite advances in pharmacological, mechanical and reperfusion endeavours.

Cardiogenic shock is defined as a systolic blood pressure of less than 90 mmHg for at least 30 minutes, which is secondary to myocardial dysfunction. It is associated with clinical signs of hypoperfusion, which include decreased urine output, altered mental status and peripheral vasoconstriction. It is usually unresponsive to fluids, an important differentiating quality from other types of shock. However, it frequently responds to inotropes. The cardiac index (CI) and the pulmonary capillary wedge pressure (PCWP) are usually less than 2.2 l/min/m2 and greater than 15 mmHg respectively.

Cardiogenic shock seems to occur with a greater frequency amongst patients with ST-segment elevation myocardial infarction (STEMI). More common in triple vessel disease, the most common artery involved was LAD.

Diabetics are twice as likely to develop cardiogenic shock as non-diabetics with AMI. However, the prognosis of cardiogenic shock is similar in both groups of patients.

Left ventricular dysfunction (LVD) is the most frequent cause of cardiogenic shock.

The current American College of Cardiology/American Heart Association (ACC/AHA) guidelines recommend (class I) early revascularisation strategy for patients < 75 years of age with cardiogenic shock. In hospitals were emergent revascularization is not available, it is more appropriate proceed with fibrinolytic therapy and IABP (ACC/AHA class-I recommendation) while arrangements are made for PTCA/CABG.

AIMS AND OBJECTIVES
1) study hypotension (Cardiogenic shock) as a prognostic factor in Acute coronary syndrome.
2) To study clinical presentation and contribution of risk factors in patients presented with Cardiogenic shock.
3) To compare the prognosis of the cardiogenic shock in STEMI and NSTEMI.
4) Assessment of Morbidity and mortality

MATERIALS AND METHODS

This is a one year observational cross sectional study conducted in the Guru Gobind Singh Hospital, Jamnagar.

Data was collected from the patients presenting to department of internal medicine at M.P. SHAH Medical college, Guru Gobind Singh Hospital, Jamnagar, fulfilling inclusion criteria. Duration of study was one year in the Period of September 2015 to September 2016 with sample size of 120 with 60 patients of ACS presented with cardiogenic shock and 60 patients without shock.

Data was analyzed by descriptive statistics and calculated as percentages and presented by using table, bag graph etc.

RESULTS
Table -1 :Age and Sex Distribution

Sex	without CS		I with CS	
	.	%	o	%
e (Total)		.66		5
<=40 years		66		66
41-50 years		33		66
51-60 years		5		.66
ale >60		.66		0
ale (total)		.33		5
<=40 years		0		33
41-50 years		66		66
51-60 years		0		0
male >60		.66		0

The table states that incidence rises with age but there is sharp rise after the age of60 years. CS was significantly more common in female gender especially in younger age group.

Table - 2 : Incidence of symptoms in present study

ymptoms	ithout CS		with CS	
	.		.	
hest pain		33		5
erspiration		33		5
estlessness		33		0
athlessness NYHA 1				
NYHA 2		0		
NYHA 3		33		
NYHA 4		66		66

				33
Nausea		5		33
Vomiting		66		5
Dizziness	3	3		0

Incidencesofvariouscomplicationswere compared between two groups and the patients with cardiogenic shock consistently had higher rates of serious complications ,the most common being pulmonary edema (~96.6%) followed by acute renal failure (38.8%) and then ventricular tachycardia, complete heart block etc.

Table - 3 : Incidence of serious complications in present study

Complication	MI without CS		MI with CS	
	.		.	
Ventricular tachycardia	9	15	18	30
Complete Heart block	2	3.33	6	10
Acute Renal Failure	6	10	23	38.33
Pulmonary Edema	**17**	**28.33**	**58**	**96.66**
Ischemic stroke	1	1.66	1	1.66
ICH	1	1.66	0	0

Though the presentation was similar in both the groups but patients with cardiogenic shock presented with higher classes of killips failure. In our study, the risk factors contributing to development of cardiogenic shock were elderly age (76%), hypertension (63%), diabetes mellitus(40%),obesity (21.6%), family history of IHD (8.33%).

The association between past history of IHD and development of cardiogenic This clearly showed that mortality was significantly higher in cardiogenic shock (68% Vs 13%).

DISCUSSION
shock was found to be non significant, so past history of IHD does not predict the risk of cardiogenic shock.

Table - 4: Comparison of Mortality between two groups:

	MI without CS		MI with CS	
	Number(out of 60)	Percentage (%)	Number(out of 60)	Percentage (%)
Expired	8	13.33	41	68.33

Over the time many studies have been carried out to detect prognosis and clinical profile of Cardiogenic Shock. We compared data from our study with other similar studies.

Table – 5 : Mean age of patients in various studies:

	Author			Present Study	
	Mc Sweeney (2003)	Largo –Janisen (2000)	Domadiya et al (2015)	MI without CS	MI with CS
Mean Age	66 ± 12	74.9	60.9	62.38	62.71

The mean age of patients in the above stated studies were comparable to that of ours i.e. above 60 years.

While comparing the Mean time delay in different studies, it came to be around 11 hours in Antoni et al (2000), 7.3 hours in Mc Sweeney (2003) and 9.18 hours in our study with the longer MTDs associated with higher rates of complications in all of these studies.

We found that **hypertension remains the most important risk factor,** although incidence varies from 71.4% to 27% in different studies except the study of David et al and William BR et al where its less common than smoking, but our results are comparable with Dantas RA et al. Obesity was the second most common risk factor

Table - 6 : Comparison of location of MI in different studies:

Wall	Author			Present study	
	Gupta MS et al	Behram M et al	Garg K C Et al	MI without CS	MI with CS
Ant wall	71%	58%	44%	38.33%	53.33%
Inferior	26%	16%	12%	10%	5%
Anterosepta l	-	25%	-	16.66%	15%
Inferior Posterior	-	-	-	8.33%	5%
Inf. RV wall	-	-	3%	26.66%	21.66%

In present study as well as in all other Comparing the complications of ACS, cardiac arrhythmias were the most common complication seen in all studies,the incidence of which was 30.4% in Lal et al, 29.6% in Greenland et al study and 22.5% overall in present study.

Incidence of mortality in MI without shock group was consistently less than the other group (~14%) which was comparable to Gupta et al(15%) and Lal et al study (15.6%).

Majority of deaths in present study was attributed to cardiogenic shock while few percent to ventricular tachycardia.

Our study has some limitations as it is a single centre study with small sample size so it is difficult to generalize result on all Indian Population.

Thus we concluded that cardiogenic shock remains most important worst prognostic factor in ACS with most of the patients being elderly with anterior wall involvement.

Incidence of serious complications like pulmonary edema, ARF and ventricular tachycardia significantly increased in patients with cardiogenic shock contribution to mortality.

Incidence of mortality in present study is 13.33% in MI without CS group and 68.33% in MI with CS group. Mortality rates has decreased owing to better diagnostic facility , increasing awareness of people, early and timely thrombolysis and better control of cardiac arrhythmias and heart block.

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