ORIGINAL RESEARCH

MANAGEMENT PATTERN IN PATIENTS PRESENTING WITH ACUTE CORONARY SYNDROME (ACS) AT A TERTIARY CARE HOSPITAL IN A PREDOMINANTLY RURAL POPULATION IN NORTH INDIA

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Abstract:

Background: Patients of ACS typically describe stable angina as deep, poorly localized chest or arm discomfort. The present study was conducted to assess management pattern in patients presenting with Acute Coronary Syndrome (ACS) at a tertiary care hospital.

Materials & Methods: 150 patients of ACS of both genders were enrolled. Cardiovascular risk factors including smoking, hypertension, diabetes and hyperlipidaemia and alcohol consumption, types of ACS, mode of management, window period, causes for not opting for PCI and echocardiographic findings were recorded.

Results: The mean age (SD) was 57.2 (12.3) years. Out of 150 patients, males were 105 (70%) and females were 45 (30%). Risk factors were diabetes mellitus in 28%, hypertension in 50%, family history of CAD in 8%, smoking in 42%, dyslipidemia in 40% and sedentary lifestyle in 58%. Type of ACS was STEMI in 97(64.7%) and NSTEMI/UA in 53(35.3%). STEMI category was AWMI in 53(57.7%), IWMI in 37(38.1%) and LWMI in 7 (7.2%). Window period was <3 hours in 7(4.7%), 3-6 hours in 20 (13.3%), 6-12 hours in 52(34.7%), 12-24 hours in 47(31.3%) and >24 hours in 24(16%). Number of hospitals visited before reaching CCU was direct in 37(24.7%), 1 in 93(62%) and 2 in 20(13.3%). Mode of management was thrombolysis only in 48 (49.5%), primary PCI in 10 (10.3%), pharmaco-invasive in 23 (23.7%), none in 16 (16.5%), PCI in 18 (33.96%) and medical management in 35 (66.04%). Causes for not opting for PCI was financial constraint in 76 (62.3%), very late presentation in 14 (11.4%), fear of surgery in 6 (4.9%), uncertainty about need for PCI in 19 (15.57%) and high- risk case in 7 (5.7%).

Conclusion: In our study population, the majority of patients with ACS had STEMI. Out of these only about 50% presented within a window period of 12 hours. The percentage presenting within the golden window period of less than 3 hours was even lower at 5%. Most

patients were managed with thrombolysis only. The primary reason for this was unwillingness due to financial constraints. Most patients were refered from a peripheral centre without any therapy and the worsening of ejection fraction by echo was directly proportional to the time of window period. The study empahsises the need for creating social awreness about ACS and its long term morbidity. Awareness is less about the mode of treatment and a wider coverage of health insurance is needed for proper management in these patients.

Key words: Acute coronary syndrome, diabetes mellitus, Hypertension, thrombolysis

Introduction:

The term acute coronary syndrome (ACS) refers to any group of clinical symptoms compatible with acute myocardial ischemia and covers the spectrum of clinical conditions ranging from unstable angina (UA) to non-ST-segment elevation myocardial infarction (NSTEMI) to ST-segment elevation myocardial infarction (STEMI).[1] Unstable angina and NSTEMI are closely related conditions: their pathophysiologic origins and clinical presentations are similar, but they differ in severity.[2] A diagnosis of NSTEMI can be made when the ischemia is sufficiently severe to cause myocardial damage that results in the release of a biomarker of myocardial necrosis into the circulation.[3]

It is estimated that by 2020, ischemic heart disease will result in 2.5 million number of deaths, whereas disability-adjusted life years lost due to CAD is expected to rise to about 7.67–14.4 million in men and 5.6–7.7 million in women in India. Acute coronary syndrome (ACS) quality improvement programmes have been employed in the USA, Sweden and China and among other countries.Patients with persistent ST-segment elevation should be assessed for immediate reperfusion therapy.[4] Patients with clearly atypical chest pain and evidence of a noncardiac diagnosis (eg, gastrointestinal or musculoskeletal disorders) can be discharged home and instructed to follow up with their primary physician (chronic stable angina may also be diagnosed in this setting). The remaining patients, those with possible ACS, should be observed in a facility with cardiac monitoring capabilities.[5] The present study was conducted to assess management pattern in patients presenting with Acute Coronary Syndrome (ACS) at a tertiary care hospital.

Materials & Methods

The present study comprised of 150 patients of ACS of both genders. All gave their written consent for the participation of the study.

Demographic data such as name, age, gender etc. was recorded. A detailed history regarding conventional cardiovascular risk factors including smoking, hypertension, diabetes and hyperlipidaemia and alcohol consumption was obtained.Types of ACS, mode of management, window period, causes for not opting for PCI and echocardiographic findings were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results:

Table I Baseline characteristics

Characteristics	Number (%)	P value
Age strata		
<40 years	12 (8%)	0.02
41-50 years	29 (19.3%)	
51-60 years	51 (34%)	
61-70 years	45 (30%)	
71-80 years	10 (6.7%)	
81-90 years	3 (2%)	
Age (years), mean (SD)	57.2 (12.3)	
Gender		
Male	105 (70%)	0.01
Female	45 (30%)	

Table I shows that age group <40 years had 12 (8%), 41-50 years had 29 (19.3%), 51-60 years had 51 (34%), 1-70 years had 45 (30%), 71-80 years had 10 (6.7%) and 81-90 yearshad 3 (2%) patients. The mean age (SD) was 57.2 (12.3) years. Out of 150 patients, males were 105 (70%) and females were 45 (30%). The difference was significant (P<0.05).

Table II Assessment of risk factors

Risk Factors	Percentage	P value
Diabetes Mellitus	28%	0.05
Hypertension	50%	
Family history of CAD	8%	
Smoking	42%	
Dyslipidemia	40%	
Sedentary lifestyle	58%	

Table II, graph I shows that risk factors were diabetes mellitus in 28%, hypertension in 50%, family history of CAD in 8%, smoking in 42%, dyslipidemia in 40% and sedentary lifestyle in 58%. The difference was significant (P<0.05).

Graph I Assessment of risk factors
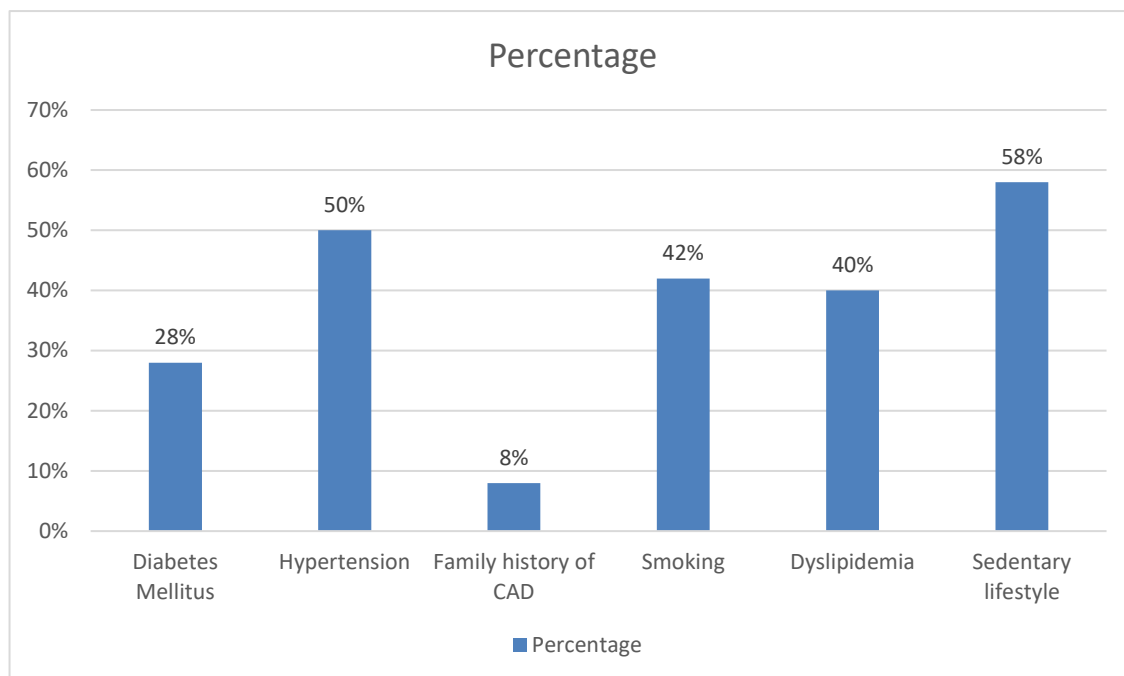
Table III Assessment of parameters

Parameters	Variables	Number (%)	P value
Type of ACS	STEMI	97(64.7%)	0.05
	NSTEMI/UA	53(35.3%)	
STEMI category	AWMI	53(57.7%)	0.12
	IWMI	37(38.1%)	
	LWMI	7 (7.2%)	
Window period	<3 hours	7(4.7%)	0.02
	3-6 hours	20 (13.3%)	
	6-12 hours	52(34.7%)	
	12-24 hours	47(31.3%)	
	>24 hours	24(16%)	
Number of hospitals visited before reaching CCU	Direct	37(24.7%)	0.05
	1	93(62%)	
	2	20(13.3%)	
Mode of management	Thrombolysis only	48 (49.5%)	0.04
	Primary PCI	10 (10.3%)	
	Pharmaco-invasive	23 (23.7%)	

	None	16 (16.5%)	
	PCI	18 (33.96%)	
	Medical management	35 (66.04%)	
Causes for not opting for PCI	Financial constraint	76 (62.3%)	0.02
	Very late presentation	14 (11.4%)	
	Fear of surgery	6 (4.9%)	
	Uncertainty about need for PCI	19 (15.57%)	
	High risk case	7 (5.7%)	

Table III shows that type of ACS was STEMI in 97(64.7%) and NSTEMI/UA in 53(35.3%). STEMI category was AWMIin 53(57.7%), IWMI in 37(38.1%) and LWMI in 7 (7.2%). Window period was <3 hoursin 7(4.7%), 3-6 hours in 20 (13.3%),6-12 hours in 52(34.7%), 12-24 hours in 47(31.3%) and >24 hours in 24(16%). Number of hospitals visited before reaching CCU was direct in 37(24.7%), 1 in 93(62%) and 2 in 20(13.3%). Mode of management was thrombolysis only in 48 (49.5%), primary PCI in 10 (10.3%), pharmaco-invasive in 23 (23.7%), none in 16 (16.5%), PCI in 18 (33.96%) and medical management in 35 (66.04%). Causes for not opting for PCI was financial constraint in 76 (62.3%), very late presentation in 14 (11.4%), fear of surgery in 6 (4.9%), uncertainty about need for PCI in 19 (15.57%) and high- risk case in 7 (5.7%). The difference was significant (P<0.05).

Table IV Echocardiographic findings

LVEF	Number	Window period (mean)	P value
STEMI			
<25%	21	14 hours	0.05
25-35%	19	10 hours	
35-45%	18	7 hours	
45-55%	25	6 hours	
>55%	14	4 hours	
NSTEMI			
<25%	5	18 hours	0.21
25-35%	11	16 hours	
35-45%	10	15 hours	
45-55%	14	12 hours	
>55%	13	8 hours	

Table IV shows that there was significant difference in window period in STEMI (P< 0.05) and non- significant difference in NSTEMI (P> 0.05).

Discussion:

The term acute coronary syndrome (ACS) refers to any group of clinical symptoms compatible with myocardial ischemia and covers the spectrum of clinical conditions ranging from unstable angina, non- ST segment elevated myocardial infarction (NSTEMI) and ST segment elevated MI (STEMI).[6]Careful and focused history taking and physical examination are essential both to assessing the likelihood that the presenting illness is ACS and to determining the risk of an adverse outcome.[7] Although patients typically describe stable angina as deep, poorly localized chest or arm discomfort that is exacerbated by activity or emotional stress and relieved by rest, nitroglycerin, or both, the discomfort associated with UA is more severe, occurs at rest, and is usually described as frank pain. Often located in the substernal region (sometimes the epigastric area), the pain or pressure frequently radiates to the neck, jaw, left shoulder, and left arm.[8]The present study was conducted to assess management pattern in patients presenting with Acute Coronary Syndrome (ACS) at a tertiary care hospital.

We found that out of 150 patients of ACS, males were 105 (70%) and females were 45 (30%). Risk factors were diabetes mellitus in 28%, hypertension in 50%, family history of CAD in 8%, smoking in 42%, dyslipidemia in 40% and sedentary lifestyle in 58%. Batulla et al[9]undertaken a study to study the clinical presentation and outcomes of patients with ACS.A total of 1034 patients with ACS presented to the emergency room, during the study period. Mean age of the study population was 56.7 ± 11.7 years. STEMI accounted for 67% of the cases. Three hundred and forty- one patients (33%) presented with NSTEMI (n = 256) and UA (n = 85). In 823 patients with ACS (79.6%), percutaneous coronary intervention (PCI) with stenting was done, and among those, primary PCI was done in 196 cases. Mean duration of stay in the hospital was 4.86 ± 1.5 days. Thirty-seven cases (3.9%) expired during the follow-up period. Reinfarction in minority cases (0.8%).

Type of ACS was STEMI in 97(64.7%) and NSTEMI/UA in 53(35.3%). STEMI category was AWMI in 53(57.7%), IWMI in 37(38.1%) and LWMI in 7 (7.2%). Window period was <3 hours in 7(4.7%), 3-6 hours in 20 (13.3%), 6-12 hours in 52(34.7%), 12-24 hours in 47(31.3%) and >24 hours in 24(16%). Number of hospitals visited before reaching CCU was direct in 37(24.7%), 1 in 93(62%) and 2 in 20(13.3%). Mode of management was thrombolysis only in 48 (49.5%), primary PCI in 10 (10.3%), pharmaco-invasive in 23 (23.7%), none in 16 (16.5%), PCI in 18 (33.96%) and medical management in 35 (66.04%).

We found that causes for not opting for PCI was financial constraint in 76 (62.3%), very late presentation in 14 (11.4%), fear of surgery in 6 (4.9%), uncertainty about need for PCI in 19 (15.57%) and high- risk case in 7 (5.7%). The admission ECG is a strong predictor of both early and long-term prognosis. In the Thrombolysis in Myocardial Infarction (TIMI) III Registry of patients with UA/NSTEMI, an ST deviation of as little as 0.05 mV increased the risk of death or MI by approximately 2-fold both at 30 days and at 1 year.[10]

The majority of patients presented with STEMI which is consistent with other Indian registries[11]. This is different from the international data in western countries where the percentage of NSTEMI is higher among the CAS population. This may be due to the fact that in western countries people undergo regular cardiac evaluations and are usually on drugs to modify the risk factors. Another major point of concern was that only about 50% of the patients presented wthin the window period of 12 hours in STEMI patients. The main reason

was the patients were initially seen at a peripheral centre and the refered. Since the study population was predominantly rural, these peripheral centres are more likely to have been managed wby health practitioners who are not aware or trained in managing ACS. Because of this there was an unusual delay in patients reaching the hospital. There needs to be more awareness in general public regarding the dangers of ACS and benefits of early management. Again, as in other registries, majority of patients were managed with thrombolysis. Primary PCI was very uncommon. The major factor against primary PCI was financial constraints. Unlike the urban population, the health insurance coverage remains very low in the rural population. Out of pocket expenses for health is a major constraint when it comes to any emergency treatment. There has to be more awareness about insurance for health emergencies in the rural population. A significant percentage of the patients also had misgivings regarding the need for PCI. This has been an increasing trend among the general population with a lack of trust on the mode of management followed in private healthcare setups. Precious time and lives are lost because of these misgivings. Some efforts need to be put in allaying these misgivings among the general population.

Conclusion:

STEMI remains the predominant mode of presentation in ACS patients. Majority of patients present late and beyond the window period in STEMI cases. This is mainly due to unawareness about the risk and morbidity of ACS. Most of the patients are still managed without primary PCI. The main factor deciding the treatment mode is the financial constraint in the absence of adequate health insurance coverage. Efforts need to be made for public awareness about CAS and the benefits of early presentation and intervention in patients with ACS.

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