



RETROSPECTIVE RECORD BASED STUDY ON PRESCRIBING PATTERN AND DRUG UTILIZATION PATTERN ON ACUTE CORONARY SYNDROME PATIENTS AT TERTIARY CARE HOSPITAL MANDYA

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Abstract

Acute Coronary Syndrome (ACS) is one of the major causes of morbidity and mortality in developing countries. Antiplatelet, antihypertensive and dyslipidemia therapy is the main stay of treatment for patients with acute coronary syndrome. Present study had been conducted to evaluate the prescribing pattern and drug utilization pattern on acute coronary syndrome patients. Aim: To describe the prescription and drug utilization pattern in patients with Acute Coronary Syndrome and to compare proportion of Acute Coronary Syndrome according to the demographic data and risk factors. **Methodology:** This was retrospective record-based study on prescribing pattern and drug utilization pattern on acute coronary syndrome patients admitted at general medicine department of MIMS, Mandya. The required data were collected from 111 cases based on inclusion criteria. A well-designed data collection form was used for collecting the details. The obtained information was documented and subjected to suitable statistical method. **Result:** Total 111 prescriptions with acute coronary syndrome were collected. Out of 111 cases, 29.72% were 51-60 years in that males were more prone to ACS. We divided 111 patients based on their smoking and alcoholic habit. 38 patients (34.23%) were found to be smokers, 27 patients (24.32%) were alcoholic. NSTEMI was the most commonly observed type of ACS. The most commonly prescribed antiplatelet was found to be Aspirin, the commonly prescribed dyslipidemic drug was found to be Atorvastatin. The most widely prescribed drugs were Aspirin, Atorvastatin and Clopidogrel followed by antihypertensive such as Enalapril. Hypertension was most commonly observed co-morbid condition with ACS. **Conclusion:** Our study concludes that Acute Coronary Syndrome is commonly seen in males at the age group of 51-60 years. Hypertension and diabetes were the most common co-morbidity and mostly prescribed class of drug was found to be antiplatelets and dyslipidemic agents.

KEY WORDS: Acute coronary syndrome, NSTEMI, Antiplatelets

INTRODUCTION

Acute Coronary Syndrome (ACS) is one of the major causes of morbidity and mortality in developing countries. Coronary Artery Disease (CAD) is a leading cause of mortality and morbidity globally, with a rising prevalence anticipated in developing nations. The condition arises from atherosclerosis, which narrows or blocks one or more coronary arteries, disrupting blood flow to the heart and creating a mismatch between the heart's oxygen needs and available supply. ACS covers a range of heart conditions, from severe heart attacks (STEMI) to less severe heart attacks (NSTEMI) and unstable angina, all requiring urgent treatment. ACS is mainly caused by atherosclerosis, where harmful lipoproteins build up in the coronary arteries, forming plaque that can rupture and lead to a heart attack. Like Sudden onset of chest pain, often accompanied by pain in the shoulders, arms, back, neck, and upper abdomen, is a common symptom of Acute Coronary Syndrome (ACS). Other symptoms may include nausea, vomiting, shortness of breath, rapid sweating, dizziness, indigestion, fatigue, chest tightness or burning, and irregular heartbeat. Two types of heart attacks (NSTEMI-ACS and STEMI) have different risk factor profiles. NSTEMI-ACS is more common in people with diabetes and high blood pressure, while STEMI is more common in smokers, drinkers, and those who have had a previous stroke. ACS (Acute Coronary Syndrome) is a complex condition influenced by multiple factors, including lifestyle choices, which impact many of the

risk variables. Specifically, modifiable risk factors such as obesity, hypertension, high cholesterol (dyslipidaemia), diabetes, and smoking are all common and significant contributors to the development of ACS, highlighting the importance of lifestyle modifications in preventing and managing this condition. The primary prevention of ACS is by decreasing risk factors like hypertension, hypercholesterolemia, diabetes mellitus and smoking.

MEDICAL MANAGEMENT

- ✓ Antiplatelet
- ✓ Anticoagulants
- ✓ ACE inhibitors
- ✓ Beta blockers

Materials and Methods:

A retrospective record based was conducted. Before the commencement of the study, approval from Institutional Ethical Committee for the research was obtained. All the patients attending the general medicine inpatients department of a teaching hospital Mandya institute of medical science (MIMS) during the study period of 6 months, who were diagnosed as ACS were chosen for the study. Sample size of 111 were in the study.

STUDY CRITERIA

- a) Inclusion criteria:
In this study, the patients are included based on the criteria including, the patients diagnosed with Acute Coronary Syndrome (ACS), patients in the age group of 30-80, a patient diagnosed with systemic hypertension, dyslipidaemia, diabetes mellitus, and others with ACS and patients with history of ACS
- b) Exclusion criteria:
Patients are excluded based on the criteria of patients with kidney diseases, patient less than age group 30 years, patient with bleeding disorders, thrombocytopenia and psychiatric patients.

METHODS OF DATA COLLECTIONS

All the data relevant to the patients were collected from patient's record. The patients record includes: socio-demographics details, diagnosis of ACS and comorbidities, habits of the patients (smoker or alcoholic) and details of the drugs prescribed and details of drugs prescribed for co-morbidities

ANALYSIS

Data collected will be coded and checked for completeness and uniformity, then data will be entered in MS Excel worksheet and descriptive statistics was used and the results were presented as tables, graphs or expressed as percentages according to the type of information collected. For continuous variables, mean and standard deviations will be calculated.

RESULTS

A total 111 were studied out of 111 patients 4.50%, 18.91%, 29.72%, 26.12%, 15.31% and 5.40% of patients were in the age group of 30-40, 41-50, 51-60, 61-70, 71-80 and 81-90 year respectively. Our study shows that patients with age group of 51-60 years were more affected with acute coronary syndrome. Out of this patient 58 (52.25%) were males and 53 (47.76%) were females and the prevalence of acute coronary syndrome was more common in males than in females.

The distribution of Acute coronary syndrome among the patients in which 78 patients were having NSTEMI (70.27%), 27 patients were having STEMI (24.32%) and 6 patients having Unstable Angina (5.40%). The comorbid conditions like Hypertension 47 (42.32%), Type 2 diabetes mellitus 27 (24.32%), ischemic heart diseases 15 (13.5 %), Pulmonary edema 3 (2.70%) COPD 5 (4.50%), kidney diseases 4 (3.60%), CVA 4 (3.60%), Hypothyroidism 3 (2.70%), Pneumonia 3 (2.70%). This shows that most of the patients were having Hypertension. Our study shows that, the most commonly prescribed antiplatelet agent was Aspirin, the most commonly prescribed Dyslipidemia agent was Atorvastatin and the most commonly prescribed antihypertensive was Enalapril.

An antiplatelet Therapy of Aspirin and Clopidogrel were mostly prescribed were the total number of Aspirin prescribed were 108 and the clopidogrel prescribed were 105 in 111 patients. An Anticoagulant Therapy involves Low molecular Weight Heparin and unfractionated Heparin where, the most commonly prescribed were Low Molecular Weight Heparin 43 (89.58%) and Unfractionated Heparin 5 (10.41%).

Our study shows that ACS with NSTEMI 78 (70.27%) were observed as the most occurring Acute Coronary Syndrome and ACS with Hypertension 47 (42.37%) and ACS with Type 2 Diabetes Mellitus 27 (24.32%), ACS with Ischemic heart diseases 15 (13.5 %), were the most commonly occurring co morbidities with ACS. Where remaining were having the other co morbid conditions COPD, Pulmonary edema, CVA, Hypothyroidism, etc.

Prescribing pattern and Drug utilization pattern includes antiplatelet, dyslipidemic, antihypertensive, and anticoagulant medicines accompanied by adjuvant and supplementary therapeutic measures. Other than the Antiplatelet, Anticoagulant, Antihypertensives, Dyslipidemic medicines are for reducing the symptoms and conditions seen in the patient. Antiemetic, Antibiotics, Antidiabetics, Proton pump inhibitors, H2 receptor antagonist, etc., were prescribed adjuvant to comorbid conditions associated with the ACS.

Figure 1: Distribution of patients based on age

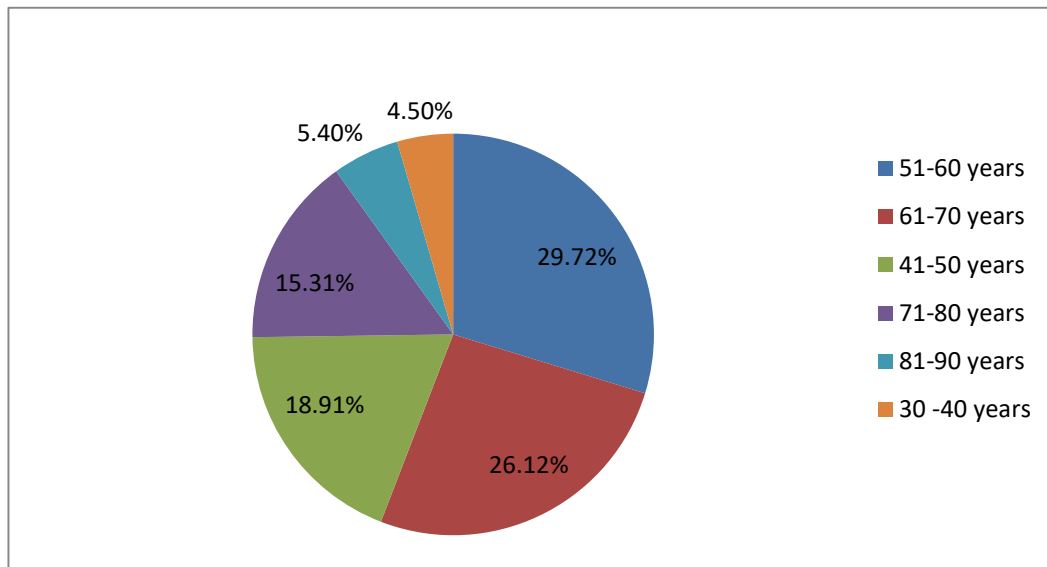


Figure 1 shows the distribution of patients based on the age where the most commonly 51-60 years are affected with acute coronary syndrome

Figure 2: Distribution of patients based on types of ACS on the basis of the gender

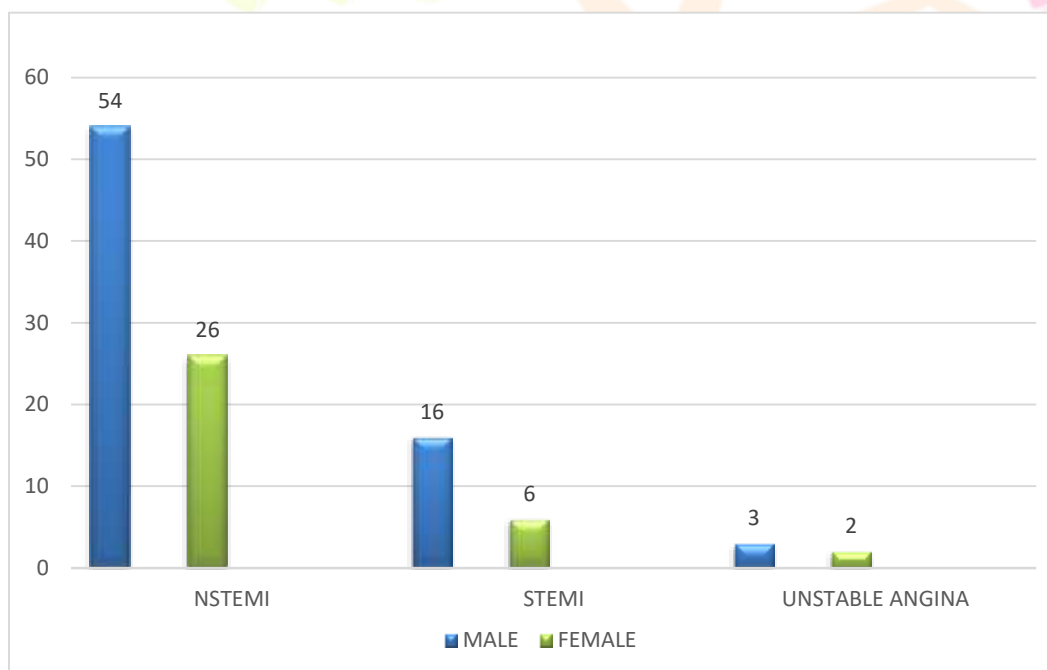


Figure 2 shows the types of ACS based on the gender were the NSTEMI was more common in both males and female followed by STEMI and Unstable angina.

COMORBIDITIES	NO. OF PATIENTS	PERCENTAGE
Hypertension	47	42.34%
T2DM	27	24.32 %
IHD	15	13.51%
COPD	5	4.50 %
Pulmonary edema	3	2.70%
Kidney disease	4	3.60%
CVA	4	3.60%
Hypothyroidism	3	2.70%
Pneumonia	3	2.70%
TOTAL	111	100%

Table 1: Distribution of patients on co morbidities

Table 2 shows the comorbidities associated with ACS were the Hypertension is the most commonly associated with ACS followed by diabetes, IHD, COPD, Pulmonary edema, kidney disease, CVA, hypothyroidism, pneumonia.

Figure 3: Distribution of different class of drugs prescribed

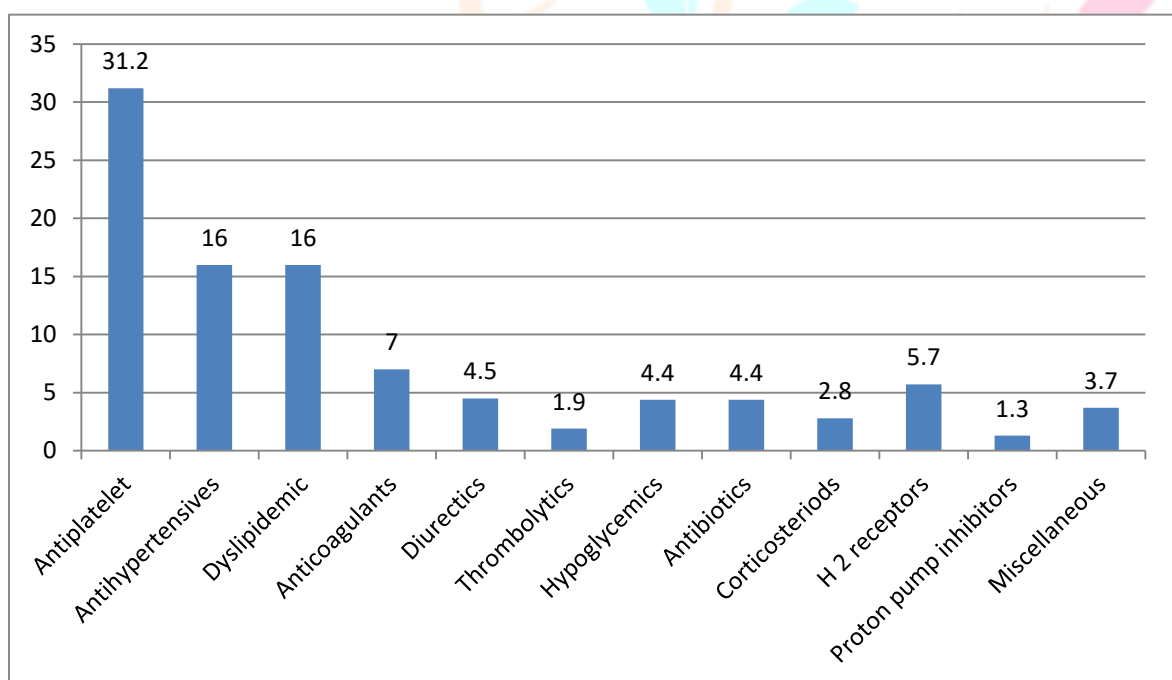


Figure 3 shows the different of class of drugs the highly prescribed includes antiplatelets, antihypertensives followed by dyslipidemic, anticoagulants.

Table 2: Distribution of antiplatelets

ANTIPLATELETS	NO.OF. DRUGS	PERCENTAGE
Aspirin	108	50.70%
Clopidogrel	105	49.29%
Total	213	100%

Table 2 shows the distribution of antiplatelets were the most commonly prescribed were aspirin and clopidogrel.

Table 3: Distribution of dyslipidemic drugs

DYSLIPIDEMIC DRUG	CLASS	NO.OF. DRUGS	PERCENTAGE
Atorvastatin	statins	108	99.1%
Rosuvastatin	statins	1	0.9%
Total		109	100%

Table 3 shows the distribution of dyslipidemic drugs where 99.1% drugs were atorvastatin and remaining 0.1 were rosuvastatin

Figure 4: Distribution of anticoagulants

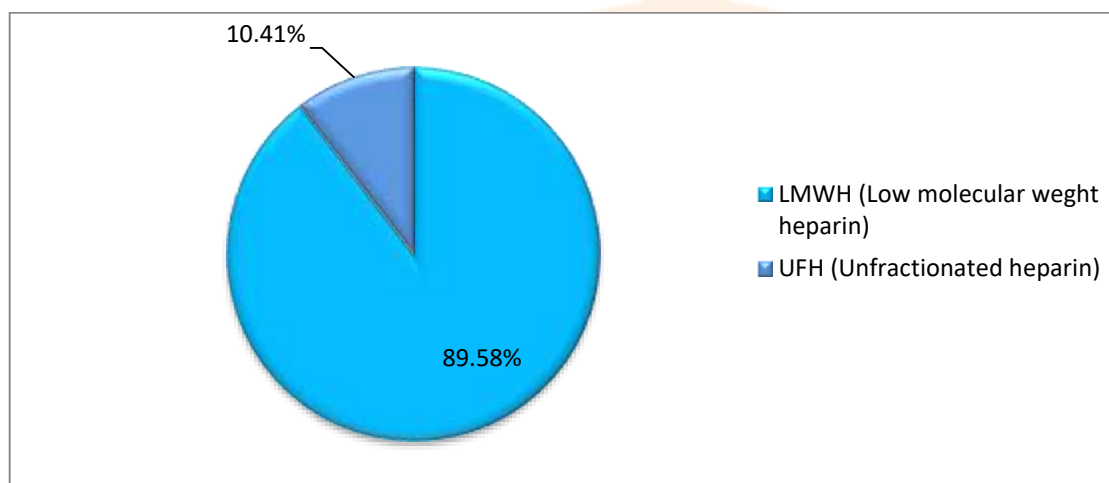


Figure 4 shows the major distribution of anticoagulants where the most commonly given was low molecular weight heparin followed by unfractionated heparin.

Figure 5: Distribution of antihypertensives

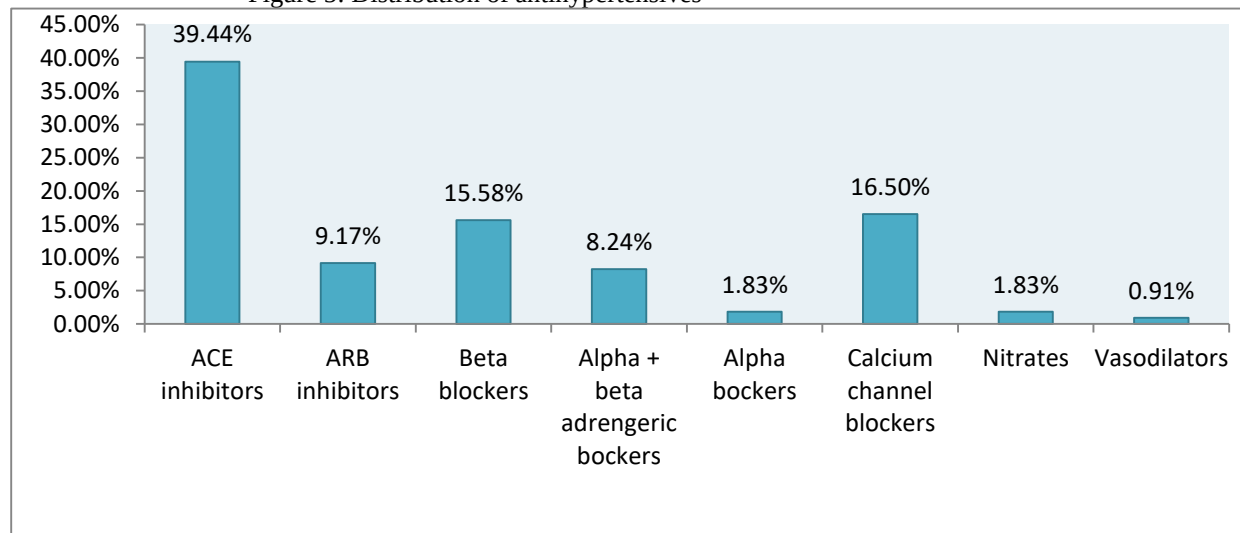


Figure 5 shows total 109 anti-hypertensive has been prescribed, most widely prescribed ACE Inhibitors 43(39.44%), ARB inhibitors 10 (9.17%), Beta blockers 17(15.58%) Alpha + Beta adrenergic blockers 9 (8.24%), Alpha blocker 2 (1.83%), Calcium channel blockers 17(16.5) %, Nitrates 2(1.83%), Vasodilators 1(0.91%).

DISCUSSION

A Retrospective study was conducted to study the Prescribing Pattern and Drug Utilization Pattern in Acute Coronary Syndrome Patients in a Tertiary Care Teaching Hospital, MIMS. A total of 111 prescriptions were taken based on the study criteria were included in the study. The patient details were recorded in suitably designed patient profile form.

The present study concludes that the incidence of acute coronary syndrome increases with increase in age. Majority of patients were in the age group of 51-60 years and it is least in the age group of 31-40 years and 81-90 years. The incidences of acute coronary syndrome were more common in male patient than in female patients. Hypertension was found to be associated positively with occurrence of acute coronary syndrome. Most of the patients presented with the complaints of chest pain, shortness of breath, easy fatigability. The number of patients of NSTEMI is more compared to STEMI in acute coronary syndrome. The most common co morbidities were hypertension, diabetes mellitus, ischemic heart disease, Antibiotics, Antiemetics, Corticosteroids, H2 receptor antagonist, Proton pump inhibitors, Thrombolytics were given in most of cases to manage the other symptoms and conditions. Our study indicates that male patients were highly prone to develop Acute Coronary Syndrome. Antiplatelet, Dyslipdemics and Antihypertensive were most commonly prescribed drug in oral route followed by intravenous route.

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CONFLICT OF INTEREST

Nil

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