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**A RETROSPECTIVE STUDY ON THE ANTIPLATELET TREATMENT
IN PATIENTS HAVING ACUTE CORONARY SYNDROME IN A
TERTIARY CARE HOSPITAL**

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ABSTRACT

A retrospective study was conducted in Department of Cardiology at Pushpagiri Medical College Hospital for a period of 6 months. The aim of the study was to study the prescribing pattern of antiplatelet drugs in patients with acute coronary syndrome and to identify the risk factor associated with acute coronary syndrome in a tertiary care hospital. In this study a total of 195 patients were analyzed in which 62.2% were male and 31.79% were females and most of the patients were in the age group 60-69years (34.87%). In our study population NSTEMI was found to be more prevalent than STEMI and unstable angina. Most common risk factor associated with ACS were hypertension (52.82%) and the most commonly prescribed antiplatelet therapy was dual therapy with aspirin and clopidogrel. The study conclude that dual therapy is more effective than monotherapy which is statistically significant (P value<0.001). The study revealed that the most commonly prescribed antiplatelet therapy was aspirin and clopidogrel. Pharmacist are in an ideal position to review the patient's risk factors for ACS and to initiate or recommend appropriate pharmacotherapy where indicated. Therefore, the integration of role of the pharmacist in the management of ACS is very crucial and improves the outcome of the patient.

**Keywords: Acute coronary syndrome, antiplatelet therapy, risk factors, hypertension,
monotherapy, aspirin, clopidogrel**

INTRODUCTION

The study analyses the prescribing pattern of antiplatelet drugs in ACS. Acute coronary syndrome (ACS) is a syndrome due to decreased blood flow in the coronary arteries such that part of the heart muscle is unable to function properly [1]. ACS is a name given to three types of coronary artery disease which include: unstable angina, non-ST segment elevation myocardial infarction or heart attack (NSTEMI) and ST-segment elevation myocardial infarction (STEMI).

Antiplatelet therapy is the first line of medical treatment for patients with acute coronary syndrome. Antiplatelet drugs are also known as anti-aggregant or platelet aggregation inhibitors [2]. Antiplatelet agents have been used for decades to improve outcomes in patients with acute coronary syndrome and have become increasingly valued not only for their antithrombotic properties but also for their anti-inflammatory effect.

Antiplatelets are a group of medicines that stop blood cells (called platelets) from sticking together and forming a blood clot. There are many different types of antiplatelet medicines. Even though each

MATERIALS AND METHODS

Single centered hospital based retrospective study was conducted after getting approval from the Institutional Ethics Committee. It was carried out in the Department of

type works differently, all antiplatelet medicines help to keep platelets from sticking together and forming blood clots.

Aspirin remains the cornerstone of antiplatelet therapy in patients with ACS. Aspirin acts by inhibiting the activity of the cox enzyme and thus attenuates the production of prostaglandins and thromboxane [3]. Dual antiplatelet therapy (DAPT) is found to be more effective than monotherapy with aspirin alone. APT therapy, defined as the use of a P₂Y₁₂ receptor inhibitors. (Clopidogrel, Ticagrelor, Prasugrel) and aspirin.

There are many modifiable risk factors for ACS. Most risk factors that initiate cardiovascular diseases have genetic, physiologic, behavioural and environmental components. Non-modifiable risk factors include age, genetics and gender. Modifiable risk factor comprises hypertension, diabetes mellitus, dyslipidaemia, smoking, alcohol and obesity [10, 7].

The prescription pattern helps to explain the extend and profile of drug use, trends and quality of drugs which enhance the rational use of drugs.

Cardiology at a tertiary care hospital having bed strength of 900. Patient who fulfilled inclusion and exclusion criteria were recruited for the study.

Criteria for eligibility

Inclusion criteria:

Patients of age >18 years.

Patients who are diagnosed with either unstable angina or myocardial infraction.

Patients received percutaneous coronary intervention.

Exclusion criteria:

Pregnant and breast-feeding women.

Outpatients were excluded.

Patients with incomplete medical records.

Procedure

The study was conducted in the department of cardiology in a tertiary care hospital for a period of 6 months in which demographic details of the patients, medical and social history, lab investigations and treatment plan were collected using a Performa. In our study, the age wise distribution reveals that majority of ACS patients were coming under the category of 60-69 years (34.87%) followed by 50-59 years (21.53%) and 70-79 years (21.02%). NSTEMI was found to be 55.38%, STEMI was found to be 31.28% and unstable angina was found to be 13.33% among males. It shows that NSTEMI is the most common ACS followed by STEMI and unstable angina. Hypertension (52.82%) was the major risk factor comparing with other comorbidities (**Table 1, Figure 1**). and the study showed that males are predominant than females in risk factors like hypertension, diabetes mellitus,

Details of 195 patients were collected, recorded and analyzed.

Data analysis

Statistical analysis was carried out by using IBM SPSS VERSION 20. The variable includes treatment pattern and hospital stay. Pearson Chi-square test was used for obtaining the association between the variables and $P < 0.001$ were considered statically significant. The 95% confidence level and absolute precision 7% were used.

RESULTS**1. Based on patient characteristics**

The gender wise distribution in the study revealed that out of 195 patients, males were predominant (68.20%) and 31.79% were female.

dyslipidaemia, smoking, obesity and alcohol.

Based on the age group and risk factors the age group of 20-29, HTN, DLP was found to be predominant. In the age group of 30-39, the major risk factor was found to be alcohol. Among the age group 40-49 HTN was found to be the major risk factor. DLP is more common in the age group of 50-59. In the age group 60-69 HTN was found to be predominant. In the age group 70-79, the more frequently occurring risk factor is DLP. In the age group of 80-89, and 90-99, HTN is found to be the common risk factor (**Table 2, Figure 2**).

2. Based on treatment regimen

Based on treatment pattern during the hospital stay, 52 patients were treated with Mono therapy, 143 with dual therapy, 1 with another antiplatelet drug which was cilostazol (Table 3, Figure 3).

On the basis of effectiveness of therapy based on hospital stay 4 patients with mono therapy(aspirin/clopidogrel) and 97 with dual therapy (aspirin+ clopidogrel) were discharged in 2-4 days. 32 mono therapy

patients and 41 dual therapy patients were discharged in 5-7 days. 19 patients with monotherapy and 3 patients with dual therapy had a hospital stay of more than 7 days (Table 4 and Figure 4). On statistical analysis the p value was found to be <0.001 and hence dual therapy with antiplatelet drugs were found to be more effective than monotherapy.

Table 1: Percentage of risk factors

Risk factor	Frequency (n=195)	Percentage
Obesity	33	16.92
Hypertension	103	52.82
Diabetes mellitus	85	43.58
Dyslipidaemia	95	48.71
Smoking	45	23.07
Alcohol	38	19.48

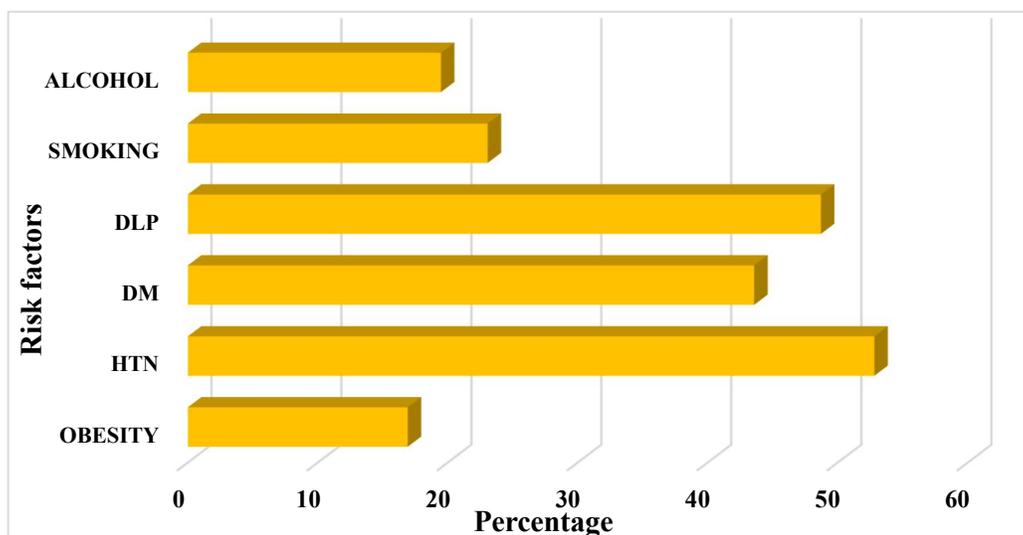


Figure 1: Percentage of risk factors

Table 2: Distribution of risk factors based on age group

Risk factor	Age group							
	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Hypertension	2	2	13	19	36	20	9	2
Diabetes mellitus	1	2	9	17	33	13	8	2
Dyslipidaemia	2	1	7	26	33	21	4	1
Smoking	1	2	4	16	18	3	1	0
Alcohol	1	3	5	11	13	4	1	0
Obesity	1	1	3	5	10	7	5	1

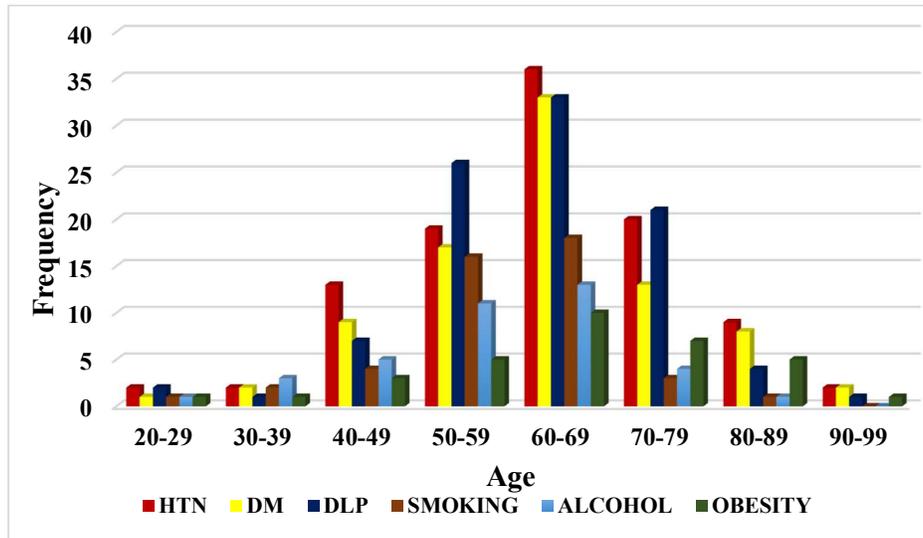


Figure 2: Distribution of risk factor based on age group

Table 3: Treatment pattern in ACS patients

Treatment pattern	Frequency
Mono therapy(asprin/clopidogrel)	52
Dual therapy(asprin+clopidogrel)	143
Other antiplatelets(dualtherapy+cilastazol)	1

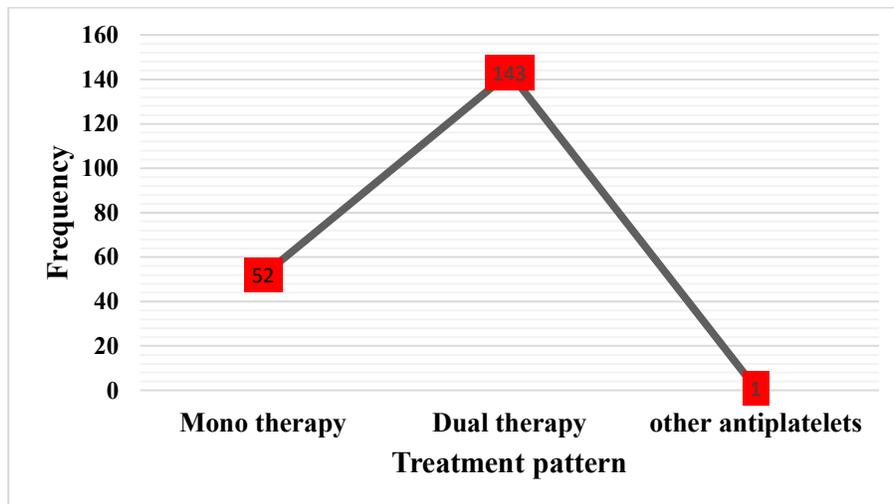


Figure 3: Treatment pattern in ACS patients

Table 4: No. of hospitalized days and treatment pattern

No. of days	02-04	05-07	>7
Mono therapy	4	32	19
Dual therapy	97	41	3

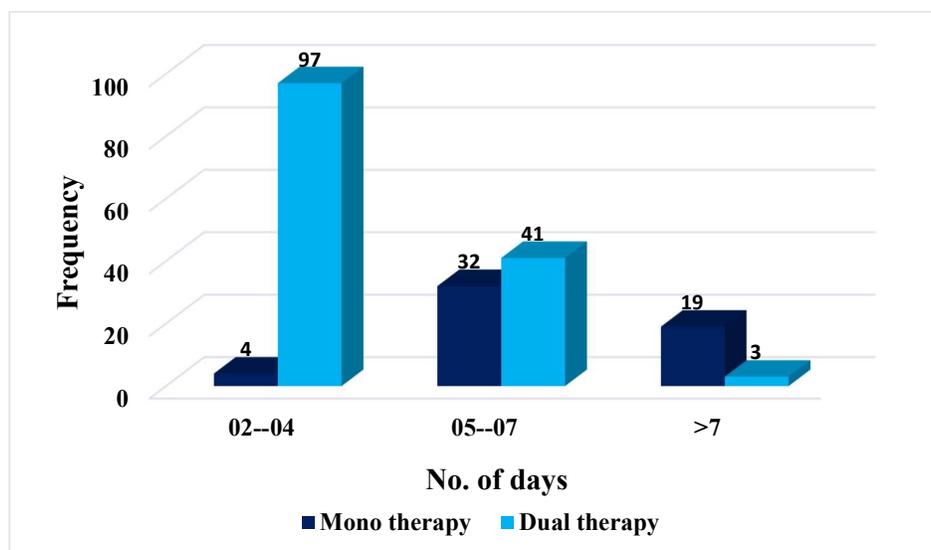


Figure 4: No. of hospitalized days and treatment pattern

DISCUSSION

This is the study describing the treatment pattern in patients having acute coronary syndrome and the risk factors which leads to the development of particular diseases. The gender wise distribution in the study revealed that out of 195 patients, males were predominant than females. This dominance is due to hormonal differences in males and females in which males have testosterone which have opposing effects on dilation of blood vessels and blood flow [15]. The age wise distribution reveals that the majority of ACS patients were coming under the category of 60-69 years [10]. This is due to the highest number of risk factors which is found in this age group and also the comorbid conditions increase with the age. The risk factors play a major role in the development of ACS and in our study the hypertension was most commonly occurred

risk factor and it increases with age, this is because Hypertension increases the risk of heart disease by damaging the lining of the arteries as a result plaque built up occurs causing the arteries to narrow [16,6]. Study also found that males are predominant than females in risk factors like hypertension, diabetes mellitus, dyslipidaemia, smoking, obesity and alcohol which are major contributing factors for ACS [9]. Hence the incidence of ACS is higher in males than in females.

Based on the treatment pattern, dual therapy with aspirin and clopidogrel was found to be the most prescribed antiplatelet regimen [17]. There was a statistically significant association between the variables under study and dual therapy was found to be more effective than monotherapy which resulted in reduced hospital stay.

The major complication associated with antiplatelet drugs is bleeding. In the study one patient experienced bleeding as a complication to antiplatelet treatment. Hence conventional therapy with aspirin and clopidogrel is safe.

CONCLUSION

The Acute coronary syndrome is among the leading cardiac disorder in the world. ACS is becoming a major type of heart disorder and disability. The burden of ACS is heterogeneous and is greater among the elderly and men. The occurrence of bleeding as a complication was very less and hence conclude that the prescribed antiplatelet drugs in the study were safe.

Our study suggests lifestyle changes for the prevention of ACS which include

- Control high BP, blood sugar and cholesterol levels.
- Avoid alcohol and quit smoking
- Manage stress and exercise regularly.

Pharmacist are in ideal position to review the patient's risk factors for ACS and to initiate or recommend appropriate pharmacotherapy where indicated. Therefore, the integration of role of pharmacist in the management of ACS is very crucial and improves the outcome of the patient.

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