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TO STUDY PRESCRIPTION PATTERN OF DRUGS AND OTHER PROPHYLACTIC MEASUREMENTS FOR SURVIVORS OF ACUTE MYOCARDIAL INFARCTION AT TERTIARY CARE TEACHING HOSPITAL, WESTERN RAJASTHAN.

Pharmacology

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ABSTRACT

Aim: Aim of this study was to evaluate prescription patterns of drugs for prophylaxis of secondary ischaemic events in patients surviving acute myocardial infarction (MI).

Methodology: This cross-sectional, observational study was conducted at Department of Pharmacology, in association with Department of Cardiology, M. D. M. Hospital, a tertiary care teaching hospital attached to Dr. S.N. Medical College, Jodhpur, Rajasthan. Study population consisted of adult patients of both sex who had been treated for myocardial infarction and were discharged from hospital.

Results: Out of 101 STEMI diagnosed patients, 66 were males and 35 were females. Maximum patients belonged to age group(60-69 yrs) . Antiplatelet and hypolipidemic drugs were prescribed to every patient. Atorvastatin was prescribed to 100% patients; while dual antiplatelet drugs (Aspirin and Clopidogrel) used in 99% patients. Among antianginal drugs, Isosorbide dinitrate (ISDN) was most commonly prescribed drug in 66 patients (65.34%), followed by Nitroglycerin (NTG) in 62 patients (61.38%). While among antihypertensive drugs beta blockers (Metoprolol) was maximally prescribed , in 64 patients (63.36%), followed by ACE inhibitors (Ramipril) in 32 patients (31.68%), respectively. Patients were advised about lifestyle modifications like smoking cessation, avoidance of environmental tobacco smoke, physical activity for at least 30 minutes for seven days or minimum five days per week. Further, patients were advised to visit for first follow up after seven days.

Conclusion: Findings of our study are in accordance with AHA and ESC 2018 guidelines.

KEYWORDS

Acute Myocardial infarction, Secondary prevention, Prophylactic Measurement.

INTRODUCTION

Evidences suggest secondary prevention after myocardial infarction(MI) reduces the mortality and risk of further ischemic events. Lifestyle modification to reduce cardiovascular risk factors and use of prophylactic pharmacotherapy reduces the risk in patients with established coronary disease. Various treatment options are used for secondary prevention globally. American Heart Association (AHA)/American College Of Cardiology Foundation (ACCF) and European Society of Cardiology (ESC) have given guidelines for secondary prevention and risk reduction therapy for patients with coronary and other atherosclerotic vascular disease. Recent evidences suggest that lifestyle modification and pharmacotherapy are corner stone for secondary prevention of coronary vascular disease.2011 update given by AHA/ACCF, recommends that lifestyle modifications like smoking cessation, avoidance of environmental tobacco smoke, physical activity for at least 30 minutes for seven days or minimum five days per week, weight management i.e. maintenance of BMI between 18.5 to 25.9 kg/m2 and waist circumference less than 102 cm for men and less than 89 cm for women are key factors for secondary preventions along with pharmacotherapy. Beta blockers and/or ACE inhibitors are recommended as first line therapy along with addition of other drugs as required, for treatment of patients with blood pressure more than or equal to 140/90 mm Hg. similarly statin therapy is recommended to achieve LDL cholesterol of less than 100 mg/dl and total cholesterol less than 200mg/dl. Dual Antiplatelet Therapy and anticoagulant agents like aspirin 75 to 162 mg/day in patients with no contraindications or clopidogrel 75 mg daily for patients who are intolerant or allergic to aspirin.AP2Y12 receptor antagonist in combination with aspirin is indicated in patients after acute coronary syndrome or per cutaneous intervention with stent placement.ACE inhibitors should be started and continued indefinitely in all patients with left ventricular ejection fraction(LVEF) less than or equal to 40% and in those with hypertension, diabetes or chronic kidney disease. ARBs are recommended in patients who have heart failure or MI with LVEF less than or equal to 40% and who are intolerant to ACE inhibitors. Beta blockers should be used in all patients with left ventricular systolic dysfunction, unless contraindicated and is continued for at least three years or beyond. The objective of this study was to evaluate prescription pattern of drugs and other prophylactic measurements for survivors of acute myocardial infarction at tertiary care teaching hospital, Western Rajasthan**.** All patients were advised to adhere with prescribed drugs as well as all other prophylactic measurements at the time of discharge from hospital**.**

MATERIALS AND METHODS

This cross-sectional observational study was conducted at Department of Pharmacology, in association with Department of Cardiology, M. D. M. Hospital, a tertiary care teaching hospital attached to Dr. S.N. Medical College, Jodhpur, Rajasthan. Study population consisted of adult patients of both sex who had been treated for acute myocardial infarction and were discharged. While patients with a hypertensive emergency, cerebral stroke, with concomitant acute medical conditions eg. CHF with oedema, Renal Failure, Hepatic Failure etc were excluded from this study.

After recording the basal parameters, and other information from the Case Record Form. The data were analyzed further according to demographic profile, social habits, coexisting illness and the drug utilization pattern including routes of administration, category of the drugs used in the treatment and fixed-dose combination .

RESULTS

1. DEMOGRAPHIC PROFILE OF THE PATIENT

a. Number of patients: A total of 101 patients of either sex and all adult age group who fulfilled inclusion criteria were taken for study at tertiary care hospital of Dr. S.N. Medical College, Jodhpur.

b. Gender (sex) distribution of study patients: Out of 101 patients 66 (65.34%) were male and 35 (34.65%) were female.(Table.1,Figure.1)

Table 1: Sex distribution of study patients

Sex	No. of Patients(n= 101)	Percentage
Male	66	65.34%
Female	35	34.65%

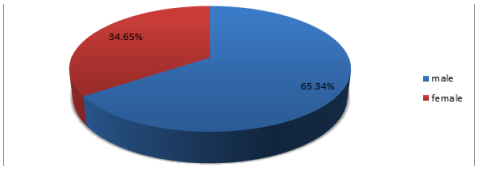

Figure 1: Gender (sex) distribution of study patients. Prevalence of MI more in male patients than female.

c. Age wise distribution of study patients

Out of 101 patients, 66 (65.34%) were male and 35(34.65%) were female. Maximum patients belonged to the age group of 60-69 years in this age group 20 (19.8%) were male and 13 (12.8%) were female. followed by age group 50-59 years male were 16(15.84%) and female were 8(7.9%), age group 70-79 years male were 14(13.8%) and female were 8(7.9%), age group 40-49 years male were 10(9.9%) and female were 1(0.99%), age group 80-89 years all patients were female 5(4.9%), age group 30-39 years all patients were male 5(4.9%). Minimum patients belonged to age group 20-29 years 1 male (0.99%).(Table.2,Figure.2)

Table 2: Age wise distribution of study patients

Age in Years	Total Patients (n= 101)	Number of Male (n=66)	Number of Female (n= 35)	Percentage	
				Male	Female
20-29	1	1	0	0.99%	0.0%
30-39	5	5	0	4.9%	0.0%
40-49	11	10	1	9.9%	0.99%
50-59	24	16	8	15.84%	7.9%
60-69	33	20	13	19.8%	12.8%
70-79	22	14	8	13.8%	7.9%
80-89	5	0	5	0.0%	4.9%

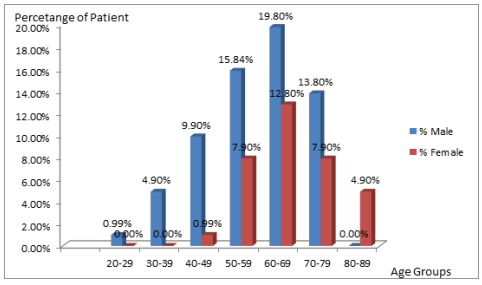

Figure 2: Age wise distribution of study patients.

2. DRUG PRESCRIPTION PATTERN

a. Distribution according to a class of drugs prescribed

In this study among the different classes of drugs used , hypolipidemic were maximum prescribed drugs they were used in all study patients (100%) followed by antiplatelets which were used in 100 patients (99%), antianginal 93 patients (92.02%), antihypertensive 81 patients (80.19%) , anti-anxiety 35 patients (34.65%), antidiabetic in 31 patients (30.69%).

Table 3: Distribution according to a class of drugs prescribed

Class Of Drug	Number Of Patients	Percentage
Hypolipidemic	101	100%
Antiplatelet	100	99%
Antianginal	93	92.07%
Antihypertensive	81	80.19%
Antianxiety	35	34.65%
Antidiabetic	31	30.69%

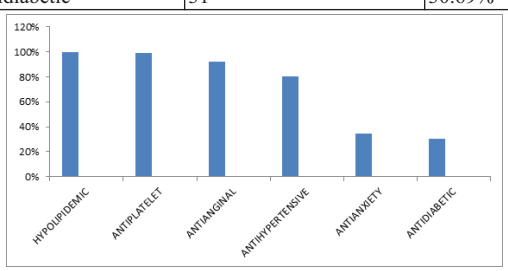

Figure 3: Distribution according to a class of drugs prescribed.

DISTRIBUTION OF ANTIPLATELET DRUGS (DAPT):

Among the individual antiplatelet drugs, aspirin and clopidogrel were maximum prescribed in 99% cases.

TABLE 4: DISTRIBUTION OF ANTIPLATELET DRUGS

Antiplatelet Drugs	Number Of Patients	Percentage
Aspirin	100	99%
Clopidogrel	100	99%
Ticagrelor	2	1.98%
Prasugrel	2	1.98%

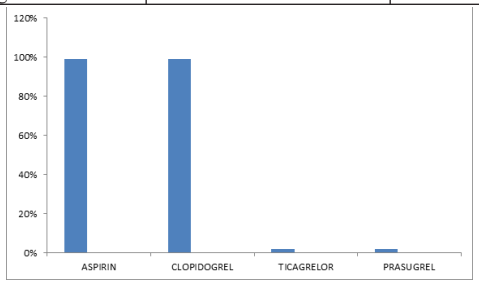

Figure 4: Distribution Of Antiplatelet Drugs

Distribution Of Hypolipidemic Drugs:

Among hypolipidemic drugs, atorvastatin was most frequently prescribed drug.

Table 5.distribution Of Hypolipidemic Drugs

Hypolipidemic Drugs	Number Of Patients	Percentage
Atorvastatin	97	96.3%
Rosuvastatin	4	3.96%

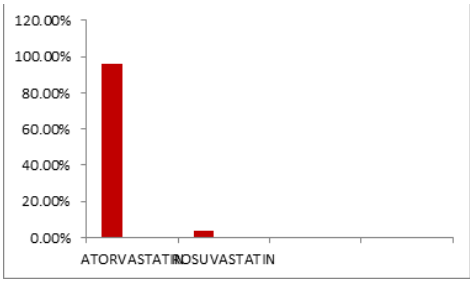

Figure 5.distribution Of Hypolipidemic Drugs

2. DISTR IBUTION OF ANTIHYPERTENSIVE DRUGS

Among the individual class of drugs, beta blockers(Metoprolol) were maximally prescribed drug that was used in 64 patients (63.36%), followed by ACE inhibitors(Ramipril) in 32 patients (31.68%), Calcium Channel Blocker(Amlodipine) in 8 patients (7.92%), and ARBs in 1 patient (0.99%) was least prescribed drugs.

Table 6: Distribution Of Antihypertensive Drugs

Antihypertensive Drug	Number Of Patients	Percentage
Beta Blockers	64	63.36%
Ace Inhibittors	32	31.68%
CCBs	8	7.92%
ARBs	1	0.99%

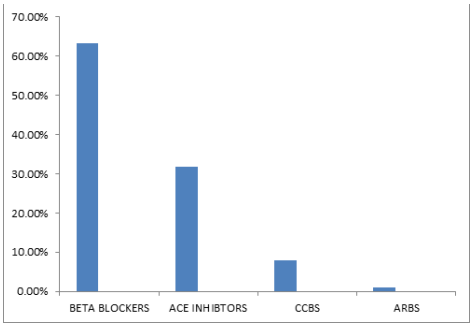

Figure 6: Distribution Of Antihypertensive Drugs To Study Patients

c. Distribution of Antianginal drugs to study patients

Among individual drugs Isosorbide dinitrate (ISDN) most common prescribed drug in 66 patients(65.34%),followed by Nitroglycerin (NTG) in 62 patients (61.38%), Trimetazidine in 57 patients (56.43%), Ivabradine in 22 patients (21.78%), Nicorandil in 14 patients (13.86%), and Ranolazine in 2 patients(1.98%) was least prescribed Antianginal drug.(Table.5,Figure.4).

Table 7: Distribution of Antianginal drugs to study patients

Antianginal Drugs	No. of Patients (n= 101)	Percentage %
Isosorbide dinitrate (ISDN)	66	65.34%
Isosorbide mononitrare (ISMN)	03	2.97%
Ivadradine	22	21.78%
Trimetazidine	57	56.43%
Nicorandil	14	13.86%
Ranolazine	02	1.98%

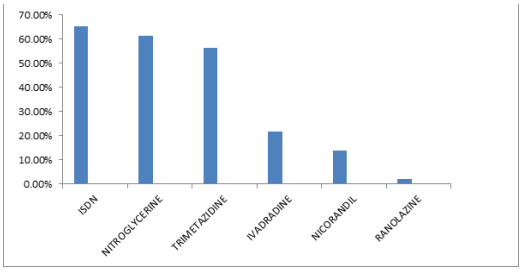

Figure 7: Distribution of antianginal drugs to study patients.

DISTRIBUTION OF ANTIDIABETIC DRUGS:

Among the antidiabetic drugs, metformin was prescribed in 19.80%, and Glimipride+Metformin combination in 10.89% patients.

Table 8: Distribution Of Antidiabetic Drugs

Antidiabetic Drugs	Number Of Patients	Percentage
Metformin	20	19.80%
Glimipride+metformin	11	10.89%

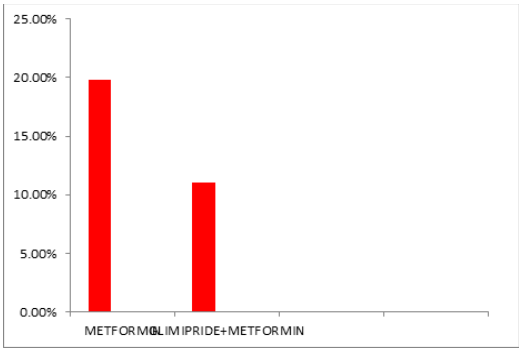

Figure 8: Distribution Of Antidiabetic Drugs

DISCUSSION

Myocardial infarction is a major cause of death and disability worldwide. Currently, India leads the World with the largest number of patients with myocardial infarction. It is the dream of the new millennium that the care of the patients should be evidence based and validated. The study of prescribing pattern is a component of a medical audit that does monitoring and evaluation of the prescribing practice of the prescribers as well as recommends necessary modifications to achieve rational and cost-effective medical care.

Myocardial infarction is associated with complications which may lead to premature death, but people with myocardial infarction can take steps to control the disease and lower the risk of complications by compliance to diet, regular exercise, and medicines. In this study, total of 101 patients were analyzed using adequate statistical tools. Regarding sex wise distribution, the majority of the patients were male sex(65.34%) and females accounted for(34.65%), In the present study, the greatest number of patients were in the age group of 60-69 years (32.6%).

In present study among the different class of drugs used at the time of discharge, were as follows: hypolipidemic in 100% patients, Antiplatelets 99%, Antianginal 92.07% and Antihypertensives in 80.19% patients, respectively.

Atorvastatin was maximally prescribed in 100% patients, followed by Aspirin and Clopidogrel in 99% of patients. Among antianginal drugs Isosorbide dinitrate (ISDN) was most commonly prescribed drug in 66 patients (65.34%), followed by Nitroglycerine NTG) in 62 patients (61.38%).

In the present study among the individual class of antihypertensive drugs, beta blockers(Metoprolol) were maximum prescribed in 63.36% patients, followed by ACE inhibitors(Ramipril) in 31.68 % patients.

CONCLUSION

Findings of our study are in accordance with AHA and ESC Guidelines. This study shows that patients surviving acute myocardial infarction and taken care of at tertiary care hospital are likely to receive prophylactic pharmacotherapy for prevention of further ischaemic events along with advice for life style modifications and strict follow up plan. Most commonly prescribed drugs were Hypolipidemic drugs, Dual antiplatelet agents, Beta blockers and Isosorbide dinitrate (ISDN) ,which are considered as cornerstone therapy for secondary prevention .

Limitations of the Study

The study populations size was small so it was not representative of the entire IHD population, and the duration of the study was short.(one year).

Conflict of Interest

The authors declare that no conflict of interest, financial or otherwise exists.

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