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PRESCRIPTION PATTERN IN PATIENTS WITH CORONARY ARTERY DISEASE IN A TERTIARY CARE HOSPITAL: A SYSTEMIC REVIEW

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ABSTRACT

Introduction: Impedance or blockage of one or more arteries which supply blood to the heart, usually due to atherosclerosis. Abbreviated CAD, A major cause of illness and death, CAD begins when the hard cholesterol substances (plaques) are deposited within a coronary artery. **Methodology:** The methodology included the plan work with the literature review and understanding the management to study the outcomes of the treatment and patient counselling. The study site for this was the inpatient ward of cardiology department, owaisi group of hospitals. The type of study site was observational study and the patient's selection was randomly done. The inclusion criteria being the patients (male and female) with the age group 30-90 years and the exclusion criteria are the male patients greater than the female ones. The study period is for 3 months with 20patients. The present study was conducted to find out the prescribing pattern of the drugs used in coronary artery disease emergencies in tertiary care hospital. Total 20 patients case sheets were analysed during 3 month study period. **Result and Discussion:** The total percentage of male and female was found to be 55% male and 45%b female. From this chart it is clear that males are more prone to cad. Patients with age group from 30-90 yeras were included in the study. The patient age group falls under 6 categories. The highest percentage of patients was seen in the age group (60-70) and the lowest percentage was seen in the age group (30-40). The most common symptoms was multiple chest pain in 11 patient's (55%) and palpitations was the next common symptom in 16 patients (40%) and the other symptoms include lower limb oedema, abdominal pain in 4 patients(20%), weakness in 2 patient (10%), fever in 6 patients. After treatment there is a difference in percentage of the frequency of symptoms i.e.; chest pain (10%), palpitations (15%), no oedema in lower limb, Fever (25%). The drugs used in CAD are HMGCOAreductase inhibitors, Antacids, Anticoagulants, Analgesics, Anti-anxiety, Anti angina, Anti platelets agents. This chart shows that the most widely used drug in the treatment of CAD is Anticoagulants (17), antacids (17) Analgesics (14) Anti-platelets (15), HMGCOA reductors (12), Anti angina (4), Anti-anxiety(10). **Conclusion:** CAD is a common disease with widespread major cause of illness and death, CAD begins when hard cholesterol substances (plaques) are deposited within a coronary artery. The plaques in the coronary arteries may lead to the formation of tiny clots that can obstruct the flow of blood to the heart muscle, producing symptoms and signs of CAD, along with the chest pain (angina pectoris), heart attack (myocardial infarction), and sudden death. Therapy for CAD includes bypass surgery, balloon angioplasty, and the use of stents. Drug prescribing pattern depicts that the most commonly prescribed drugs were HMGCOA reductase inhibitors 'anticoagulants, analgesics, antiangina and antacids.

KEYWORDS: Coronary artery disease, pain, inflammation, analgesics, plaques, HMGCOA reductase inhibitors.

INTRODUCTION

Coronary artery disease (CAD) causes impaired blood flow in the arteries which supply blood to the heart. It is also called coronary heart disease (CHD), CAD is the most usual form of heart disease and affects approximately 16.5 million Americans over the age of 20.

It's also a leading cause of death for both men and women in the United States. It's estimates that every 40 seconds, someone in the United States suffers a heart attack.

A heart attack can come from uncontrolled CAD.[1]

TYPES

1. Unstable angina: This may be a new symptom from stable angina. The angina may occur more commonly, more easily at rest, feel more severe, or last longer. This can often be relieved with oral medications (such as

nitro-glycerine) but it is unstable and may progress to a heart attack. Usually more intense medical treatment or procedure are necessary to treat unstable angina.

2. Non-ST segment elevation myocardial infarction (NSTEMI): This type of heart attack, or MI, do not cause much changes on an electrocardiogram (ECG). However, chemical markers in the blood indicates that damage has occurred in heart muscle. In NSTEMI, the blockage may be partial or temporary, so the extent of the damage is relatively small.

3. ST segment elevation myocardial infarction (STEMI): This type of MI, is caused by a sudden blockage in blood supply. It affects large area of the heart muscle, and cause changes on the ECG as well as in blood levels of key chemical indication.

Although some people have symptoms that indicate they might be soon developing an acute coronary syndrome, some may have no symptoms until something happens, and still others have no symptoms of the acute coronary syndrome at all.

All acute coronary syndromes requires emergency evaluation and therapy.

4. Collateral Circulation: As the size of the blockage in a coronary artery increases, the narrow coronary artery may develop "collateral circulation." Collateral circulation is the development of new blood vessels that re-route blood flow around blockage. However, at times of increased exertion or stress, the new arteries may not be able to supply enough oxygen-rich blood to the heart muscle.

CAUSES

The most usual cause of CAD is vascular injury with cholesterol plaque, buildup in the arteries, known as atherosclerosis. Minimised blood flow occurs when one or more of these arteries become partially or completely blocked.

The four primary coronary arteries are located on surface of the heart:

1. Right main coronary artery
2. Left main coronary artery
3. Left circumflex artery
4. Left anterior descending artery

These arteries supply oxygen and nutrient-rich blood to your heart. Your heart is the muscle that is responsible for pumping blood throughout your body. Like any other organ or muscle, your heart must receive an adequate, dependable supply of blood in order to carry out the work. Minimised blood flow to your heart can cause symptoms of CAD. Other rare causes of damage or blockage to a coronary artery also limit blood flow to the heart.[10]

SYMPTOMS: When your heart doesn't get enough arterial blood, you may experience a range of symptoms. Angina is the most common symptom of CAD. Some people describe this discomfort as:

- chest pain
- heaviness
- tightness
- burning
- squeezing
- The above symptoms can also be mistaken for heartburn or indigestion.

- **Other symptoms of CAD include**
- pain in the arms or shoulders
- shortness of breath
- sweating
- dizziness

We may experience more symptoms when our blood flow is more restricted. If a blockage cuts off blood flow completely, your heart muscle will start to die if not restored. This is called heart attack. Don't ignore any of these symptoms, especially if they are lasting long than five minutes and immediate medical treatment is required.[13]

RISK FACTORS

Coronary artery disease has a list of well determined risk factors. These include risks of high blood pressure, smoking, diabetes, lack of exercise, obesity, high blood cholesterol, poor diet, depression, family history, and excessive alcohol. About half of cases are connected to genetics. Smoking and obesity are with about 36% and 20% of cases, respectively. Smoking just one cigarette per day doubles the risk of CAD. The Lack of exercising has been linked to 7–12% of cases. Exposure to the herbicides may increase risk. Rheumatologic diseases such as rheumatoid arthritis, systemic lupus erythematosus, psoriasis, and psoriatic arthritis are not dependent risk factors.

Job stress play a minor role accounting for about 3% of cases. In a study, women who were free of stress from work life saw an increase in the diameter of their blood vessels, leading to reduced progression of atherosclerosis. In contrast, women who had high levels of work-related stress experienced a decrease in the diameter of their blood vessels and increase disease progression. Having a type a behavioural pattern, a group of personality characteristics including time urgency, competitiveness, hostility, and impatience, is related to an increased risk of coronary disease.

High blood cholesterol (specially, serum LDL concentrations). HDL has a protective effect over development of coronary artery disease. High blood triglycerides may play a role.

Dietary cholesterol do not appear to have a significant effect on blood cholesterol and thus recommendations

about the consumption of it may not be needed. Saturated fat is still a big concern.[15]

DIAGNOSIS

For symptomatic people, the stress echocardiography can be used to carry diagnosis for obstructive coronary artery disease. The use of echocardiography, stress cardiac imaging, and advanced non-invasive imaging is not recommended on individuals who are exhibiting no symptoms and they are otherwise at less risk for developing coronary disease.

The diagnosis of "Cardiac Syndrome X" – a rare coronary artery disease is more common in women. Same tests are used as in any person with the suspected of having coronary artery disease:

Baseline electrocardiography (ECG)
Exercise ECG – Stress test
Exercise radioisotope test (nuclear stress test, myocardial scintigraphy)
Echocardiography (including stress echocardiography)
Coronary angiography
Intravascular ultrasound
Magnetic resonance imaging (MRI)

The diagnosis of coronary disease that underly particular symptoms depends largely on the nature of the symptoms. The first investigation is the electrocardiogram (ECG/EKG), both for "stable" angina and acute coronary syndrome. X-ray of the chest and blood tests may be performed.[16]

Pharmacological Treatment

S.NO	DRUG	DOSAGE FORM	CLASS
1	Inj. Lasix	Injection	Diuretics
2	Inj. heparin	Injection	Xanthine
3	Inj. monocat	Injection	Inotropic Agent
4	Inj. zofer	Injection	Penicillin Antibiotic
5	Inj. pcm	Injection	Quinolones Antibiotic
6	Inj. monocef	Injection	Anti-coagulant
7	Tab.ecospirin	Oral	Adrenergic Inhalant
8	Tab. Clopitab	Oral	Anti-Platelet Agent
9	Tab. Tonact	Oral	HMGCoA Reductase Inhibitor
10	Tab. Sorbitrate	Oral	Nitrates
11	Inj. Pan 40	Injection	Proton Pump Inhibitor
12	Inj. HAI Aceto	Injection	Mild Analgesic
13	Tab. Monit gtn	Oral	Anti-angina
14	Tab. Lanoxin	Oral	Cardiac Glycoside
15	Tab. acyclovir	Oral	Anti-viral
16	Tab. Efcolin	Oral	Anti-cancer
17	Tab. Ecosprin	Oral	NSAID
18	Syp. Potklor	Oral	Electrolyte
19	Syp. Alex sf	Oral	Antihistamine
20	Syp. Cremaffin	Oral	Laxative
21	Tab. Atorsane	Oral	Anti-cholesterol
22	Tab. Dobutamine	Oral	Cardio tonic Agent
23	Tab. Glucaryl	Oral	Beta Blocker
24	Tab. Ranozex	Oral	Anti Anginal
25	Inj. Zofer	Injection	Anti-Emetic Agent
26	Tab.bio d3 plus	Oral	Vitamin d supplement
27	Tab. Rosuvas	Oral	HMGCoA Reductase Inhibitor
28	Tab. Restyl	Oral	Anti-Anxiety Agent
29	Tab. Dolo	Oral	Narcotic Agent
30	Tab Rozucor gold	Oral	HMGCoA Reductase Inhibitor
31	Tab. Planep	Oral	Diuretic
32	Syp. Mucaine gel	Oral	Antacid
33	IVF NS-10(Nacl)	IVF	Normal Saline
34	IVF DNS 10	IVF	Normal Saline
35	Tab. Losar	Oral	Angiotensin Receptor Blocker
36	Inj. Avil	Injection	Anti Histamine
37	Inj. Monocef	Injection	3rd Generation Cephalosporin
38	Tab. Telma	Oral	Antihypertensive
39	Tab. Avas	Oral	Anticardic diseases
40	Tab. Ultracet	Oral	Analgesic

METHODOLOGY

PLAN OF WORK

- To get the ethical committee approval for the study.
- Literature review.
- Designing the data collection form.
- To understand the management.
- To study the outcomes of the treatment.
- Patient counselling.
- Reporting of the collected data

STUDY SITE

- Inpatient ward of Cardiology Department, Owaisi group of hospitals.

STUDY DESIGN

1. Observational, non-interventional study.
2. Patient selection was random.

STUDY CRITERIA

- **Inclusion criteria**

1. Patients of age 30-100yrs.
2. Patients (in-patients) of both genders.
3. Patients with comorbid conditions.

- **Exclusion criteria**

1. Paediatrics and patient's ≥30yrs age.
2. Pregnant woman

- **STUDY PERIOD** : 1 month
- **SAMPLE SIZE** : 20 patients

RESULTS

A study of 20 patients was conducted with Coronary Artery Disease as determined by respective diagnosis test and symptoms.

6.1. RESULTS BASED ON SEX

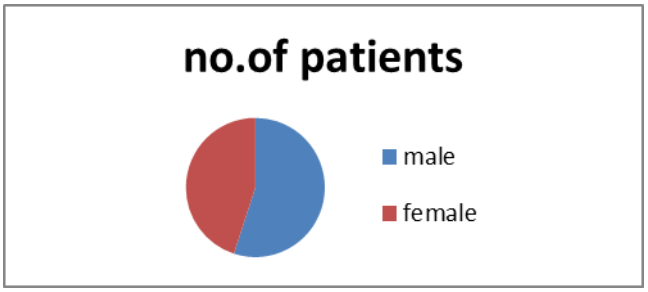


Table no. 3: Number of patients.

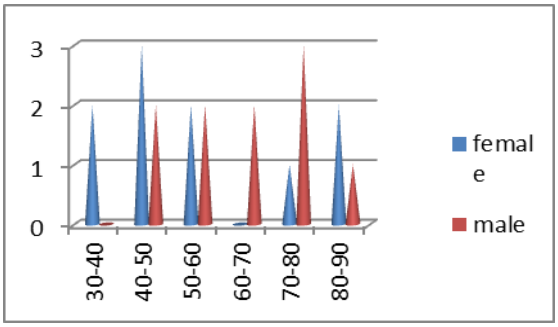
CATEGORY	NUMBER OF PATIENTS	PERCENTAGE OF NUMBER OF PATIENTS
MALE	11	55%
FEMALE	09	45%

The total percentage of male and female in 20 patients was found to be 55% (male) and 45% (female). From this chart it is clear that Males are more prone to CAD.

5.2. RESULTS BASED ON AGE GROUPS

Table no. 4: Age groups.

CATEGORY	NUMBER OF PATIENTS		PERCENTAGE	
	FEMALE	MALE	FEMALE	MALE
30-40	2	0	18.1%	0
40-50	3	2	27.7%	22.2%
50-60	2	2	18.1%	22.2%
60-70	0	2	0	22.2%
70-80	1	3	9.09%	66.6%
80-90	2	1	18.1%	11.1%



Patients with age group from 30-90yrs were included in the study. The patient age group falls in 6 categories i.e.; class interval 30-40age, 40-50age, 50-60age, 60-70, 70-80, and 80-90age. The highest percentage of patients were seen in the fifth category i.e.; age group (70-80) and the lowest percentage in the first category age group (30-40).

5.3. RESULTS BASED ON SYMPTOMS

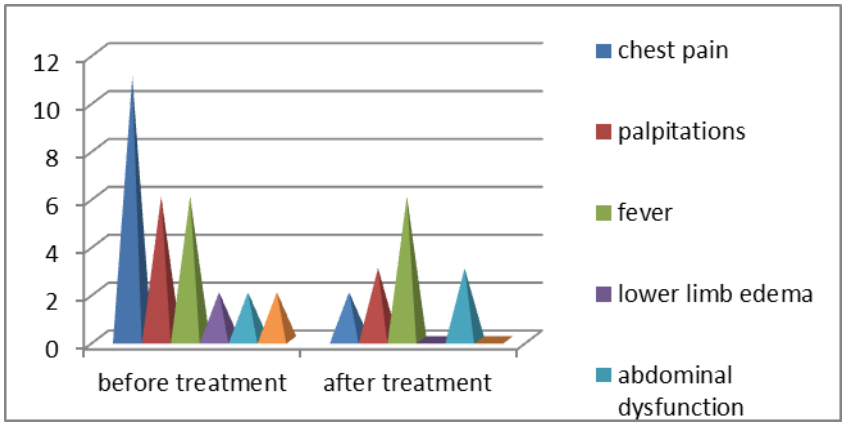


Table no. 5: Symptoms.

Category	chest pain	palpitations	fever	Lower limb edema	Abdominal Pain	weakness
Before Treatment	11	6	6	2	2	2
After Treatment	2	03	5	0	3	9

The most common symptoms was multiple chest pain in 11 patient's (55%) and palpitations was the next common symptom in 16 patients (40%) and the other symptoms include lower limb oedema, abdominal pain in 4 patients(20%), weakness in 2 patient (10%), fever in 6 patients. After treatment there is a difference in percentage of the frequency of symptoms i.e.; chest pain (10%), palpitations (15%), no oedema in lower limb, Fever (25%).

5.4. RESULTS SHOWING USAGE OF A DRUG

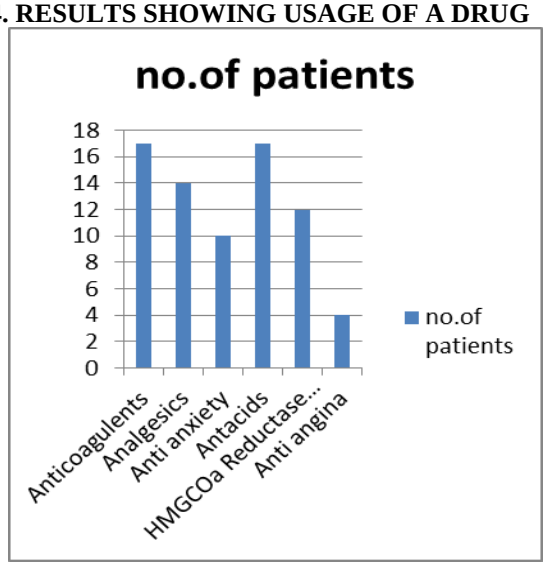


Fig no. 27: Column chart showing results based on usage of RA drug.

Table no. 6: Usage of RA drugs.

Prescribed drug	No. Of patients	Percentage of patients
Anticoagulants	17	85%
Analgesics	14	70%
Anti-anxiety	10	50%
Antacids	17	85%
HMGCOAreductase inhibitors	12	60%
Anti-angina	4	21%
Antiplatelet agent	15	75%

The drugs used in CAD are HMGCOAreductase inhibitors, Antacids, Anticoagulants, Analgesics, Anti-anxiety, Anti angina, Anti platelets agents.

This chart shows that the most widely used drug in the treatment of CAD is Anticoagulants (17), antacids (17) Analgesics (14) Anti- platelets (15), HMGCOA reductors (12), Anti angina (4), Anti-anxiety(10).

5.5. Results showing usage of other drugs

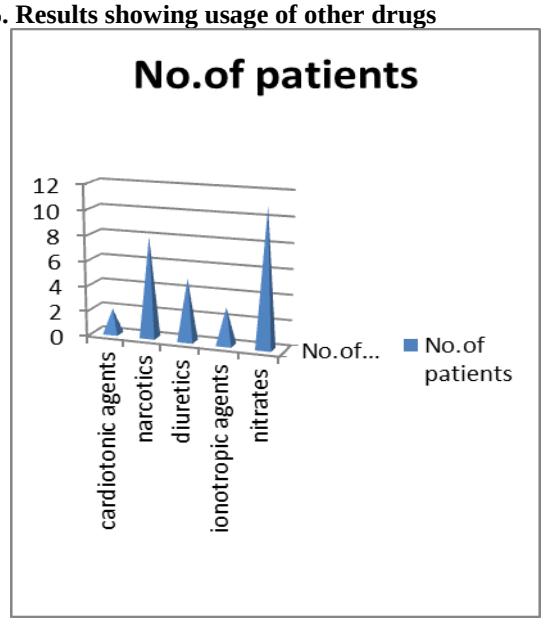


Fig no. 28: Column chart showing results based on usage of other drugs.

Table no. 7: Usage of other drugs.

Prescribed drug	No. Of patients
Cardio tonic agents	2
Narcotics	8
Diuretics	5
Inotropic agents	3
Nitrates	11

They are various other drugs that are used with Anti CAD drugs in the treatment of Coronary Artery Disease such as Cardio tonic agents, Narcotics, Diuretics, Inotropic agents and nitrates.

DISCUSSION

The present study was conducted to find out prescribing pattern of drugs used in Coronary Artery Disease emergencies in tertiary care hospital. Total 20 patients case sheets were analysed during 3 month study period. Results pointed out that the frequency of CAD patient's emergencies was more in male patients (55%) than female patients (45%).

In the age group 60-70yrs the number of female patients was found significantly less as compared to the number of female patients in the age group 40-50yrs. Also there was significant difference between number of male and female patients in the age group of 40-50 yrs.' and 50-60yrs.

In the present, it has been found that the rate of Anticoagulants (Heparin), Analgesics (Ecospirin), HMGCOA reductase (rosuvas gold), Antiplatelet and antiangina (Ranozex, Monit gtn) were high.

HMGCOA reductase inhibitors, Anticoagulants, Analgesics, Anti-anxiety, Anti platelets were prescribed commonly.

The other drugs used were Antibiotics, Narcotics, Diuretic's, Nitrates, Inotropic agents and Antacids.

CONCLUSION

Now a days cardiac diseases are becoming common cause of death in the developing world. The aim of this study is to produce the rational prescriber and to give the prescription pattern of drug use and recommendation and guidelines. This study also shows that the most commonly prescribed drug classes involved were Anti platelets, Anti-coagulants, Vasodilators, Beta blockers and Analgesics and their combination among CAD patients. According to this study males were found to be more prone to this disease. The rationality of the drug use was assessed and the treatment found to be satisfactory as the patient readmission in hospital is becoming less. As pharmacist play a crucial role in patient's life, patient counselling and education services helped them to understand their disease and therapy. A better patient compliance was observed. As this study does not include much sample size further more studies should be carried out.

The study can be carried out in larger groups of patients to further identify treatment benefits and treatment-related ADR`s in a larger population.

REFERENCES

1. Medically reviewed by Stacy Sampson, DO on January 23, 2018 — Written by Valencia Higuera and the Health line Editorial Team. www.healthline.com
2. https://www.medicinenet.com/script/main/art.asp?articlekey=10267
3. Medically reviewed by Stacy Sampson, DO on January 23, 2018 — Written by Valencia Higuera and the Healthline Editorial Team. www.healthline.com
4. Dai, Xuming; et al. (2016). "Genetics of coronary artery disease and myocardial infarction". World Journal of Cardiology, 8(1): 1–23. doi:10.4330/wjc.v8.i1.1. PMC 4728103. PMID 26839654.
5. Kivimäki M, Nyberg ST, Batty GD, Fransson EI, Heikkilä K, Alfredsson L, Bjorner JB, Borritz M, Burr H, Casini A, Clays E, De Bacquer D, Dragano N, Ferrie JE, Geuskens GA, Goldberg M, Hamer M, Hooftman WE, Houtman IL, Joensuu M, Jokela M, Kittel F, Knutsson A, Koskenvuo M, Koskinen A, Kouvonen A, Kumari M, Madsen IE, Marmot MG, Nielsen ML, Nordin M, Oksanen T, Pentti J, Rugulies R, Salo P, Siegrist J, Singh-Manoux A, Suominen SB, Väänänen A, Vahtera J, Virtanen M, Westerholm PJ, Westerlund H, Zins M, Steptoe A, Theorell T (October 2012). "Job strain as a risk factor for coronary heart disease: a collaborative meta-analysis of individual participant data". Lancet, 380(9852): 1491–97. doi:10.1016/S0140-6736(12)60994-5. PMC 3486012. PMID 22981903.
6. Hackshaw, Allan; Morris, Joan K; Boniface, Sadie; Tang, Jin-Ling; Milenković, Dušan (24 January 2018). "Low cigarette consumption and risk of coronary heart disease and stroke: meta-analysis of 141 cohort studies in 55 study reports". BMJ., 360: j5855. doi:10.1136/bmj.j5855. PMC 5781309. PMID 29367388.
7. Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT (July 2012). "Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy". Lancet., 380(9838): 219–29. doi:10.1016/S0140-6736(12)61031-9. PMC 3645500. PMID 22818936.
8. In the guidelines on HF treatment from the European Society of Cardiology several educational topics are listed as important to include in patient education for patients with chronic HF and their close relatives. The following major areas in non-pharmacological management and patient education in HF patients can be identified logy to Evidence-Based Therapeutics (1st ed.), John Wiley and Sons, ISBN 978-0-470-91537-0.