

PRESCRIPTION TRENDS OF DOCTORS AGAINST CARDIOVASCULAR SYSTEM DISEASES

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ABSTRACT

There are number of complications that make discomfort to the human body. But it seems particularly serious when related to cardiac functions. The purpose of study is to investigate the prescription trend among the prescribers for cardiovascular diseases. Prescription of cardiac patients contain medications that are necessary to manage the cardiac complication and also consist of medication that prevent the patient from further problems like aspirin is use to prevent myocardial infarction. Required data was extracted from the prescriptions and then evaluated. Collected data was categorized on the basis of generics prescribed to the different cardiac patients. Then found out how many times a generic was prescribed. Statistical analysis was done using Microsoft Excel. After evaluation of the prescriptions it was seen that aspirin is most important drug in the prescriptions of heart diseases. It is the mostly prescribed medicine in cardiac patient and it was found in 146 prescriptions out of 150. And least prescribed generics were simvastatin and trimetazidine dihydrochloride. We extracted brands from the prescriptions and then tabulated against number of repetitions, then calculate the percentage of repetition of a brand, by dividing repetitions to total collected number of prescriptions, that were 150. it was found that most prescribed brand in heart diseases is ascard that contains aspirin. That prevent the patient from myocardial infarction and heart attack. Health practitioners and patients need to follow standard guidelines for medications to minimize further complication and to ensure a healthy nation.

Keywords: Prescription trend, Brands selection, Generics, CVS

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INTRODUCTION

The circulatory system, also called the cardiovascular system or the vascular system, is an organ system that permits blood to circulate and transport nutrients (such as electrolytes and amino acids), carbon dioxide, hormones, oxygen, and blood cells to and from the cells in the body to provide nourishment and help in fighting diseases, stabilize temperature and pH, and maintain homeostasis. Cardiovascular disease generally refers to conditions that involve narrowed or blocked blood vessels that can lead to a heart attack, chest pain (angina) or stroke. Other heart conditions, such as those that affect your heart's muscle, valves or rhythm, also are considered forms of heart disease. There are different types of cardiovascular diseases [1]. Dyslipidemia is elevation of plasma cholesterol, triglycerides (TGs), or both, or a low high-density lipoprotein level that contributes to the development of atherosclerosis. Dyslipidemias were traditionally classified by patterns of elevation

in lipids and lipoproteins [2]. They may be classified by: Increases in cholesterol only (pure or isolated hypercholesterolemia), Increases in TGs only (pure or isolated hypertriglyceridemia), Increases in both cholesterol and TGs (mixed or combined hyperlipidemias) [3]. Coronary artery disease (CAD) is one of the most common type of heart disease. In which there is no enough supply of blood to the heart muscles that require for the proper functioning of heart. It comes into occurrence when the arteries that supply blood to heart muscle become hardened and narrowed. That may due to the accumulation of cholesterol and other materials, called plaque, on their inner walls. This buildup is called atherosclerosis. That cause the less blood to flow through the arteries. As a consequence, the heart muscle can't get the blood or oxygen as it needed. This can lead to the chest pain or a heart attack. That may cause sudden heart attack [4]. Angina pectoris is

the medical term for chest pain or discomfort due to coronary heart disease. Angina pectoris also called the stable angina. It occurs when the heart muscle doesn't get as much blood as it needs. This usually happens because one or more of the heart's arteries is narrowed or blocked, also called Ischemia [5].

Types of angina are: Prinzmetal angina and Unstable angina. Prinzmetal angina also called Variant angina, Prinzmetal's variant angina, Prinzmetal's angina is rare, representing about two out of 100 cases of angina, and usually occurs in younger patients than those who have other kinds of angina. Unstable angina or sometimes referred to as "acute coronary syndrome" [6]. Hypertension is defined as blood pressure higher than 140 over 90 mmHg (millimeters of mercury). A diagnosis of hypertension may be made when one or both readings are high systolic (the pressure as the heart pumps blood around the body), given first; or diastolic (pressure as the heart relaxes and refills with blood), given second [7]. Modern lifestyle factors are responsible for a growing burden of hypertension i.e physical inactivity, salt-rich diets with processed and fatty foods, and alcohol and tobacco use. Myocardial infarction (MI) is the irreversible death (necrosis) of heart muscle secondary to prolonged lack of oxygen supply (ischemia). Approximately 1.5 million cases of MI occur annually in United states. Patients with typical MI may have the following prodromal symptoms i.e fatigue, chest discomfort, malaise. Typical chest pain in acute MI is Intense and unremitting for 30-60 min. An arrhythmia is an abnormal heart rhythm. Bradycardia is when the heart rate is too slow i.e., less than 60 beats per minute, Tachycardia is when the heart rate is too fast i.e., more than 100 beats per minute [8].

We are studying the prescription trend of Cardiovascular diseases among general population to get an idea about the mode of prescription among government and private hospital's prescriber and to get an idea that which generic and brand of the drug is mostly being used among the population.

METHOD

Study Design

This report was based on the evaluation of the prescription. A prospective observation study was carried out for a period of 4 weeks in the month during September to October. During this period, 150 prescriptions were collected from the cardiac patient suffering from angina pectoris, HTN, cardiac arrhythmias, myocardial infarction etc, attending different hospitals (outdoor patient as well as indoor patient) and pharmacies.

Study Population

This study was done based on the survey of prescribed medications to find out the prescription trend of cardiac diseases. Prescriptions were collected from outpatient department of Allied hospital Faisalabad and Faisalabad institute of cardiology. Total 150 patients including female and male were involved in this study [9].

Data Collecting Procedure

After collection of prescription at first the patients were categorized according to their age groups, then we extract the data about brands and generics prescribed in particular disease.

Data Analysis

After that on the basis of age, percentage of particular disease, in both the genders was found out. Then the patients were categorized according to the generic, they were prescribed. Then data obtained was analyzed by using graphical method [10].

RESULT

Patients of cardiac diseases were categorized into different age groups. Then extracted data was tabulated in the form given below in **Table 1**. Data depicted that the occurrence of hypertension in cardiac patient is highest in the age group of 46-55, hyperlipidemia is highest in the age group of 46-55 and 66-75. Occurrence of angina, diabetes and congestive heart failure also found highest in the age group of 46-55, while NSTEMI found very less common.

Table 1: Percentage of occurrence of heart diseases in different age groups.

Age (years)	Hypertension (%)		Hyperlipidemia (%)		Angina (%)		Diabetes (%)		MI (%)		CHF (%)		NSTEMI (%)	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	25-35	2	1	1	3	0	0	0	1	0.6	0	0.6	0	0
36-45	8	4	3	1	1.3	0	0	0	0.6	0	0	0	0	0
46-55	12	9	6	5	2.6	0	2	3	0	0.6	2.6	2.6	0	0
56-65	12	7	6	4	1.3	0	1	1	0.6	0	0.6	0	0	0
66-75	11	4	10	1	0.6	1.3	2	2	0.6	0	0	1.3	0	1
76-85	1	2	1	3	0	0.6	0	1	0.6	0	0.6	0	0	0

MI Myocardial Infarction CHF Congestive Heart Failure, NSTEMI Non ST-Elevation Myocardial Infarction

Collected data was categorized on the basis of generics prescribed to the different cardiac patients. Then find out how many times a generic was prescribed and provide in the column as the number of repetitions. Then these repetitious generics were converted into percentage by dividing repetition to the total number of prescriptions that were 150. Data

given in **Table 2** is presenting that aspirin is most important drug in the prescriptions of heart diseases. It is the mostly prescribed medicine in cardiac patient and it is found in 146 prescriptions out of 150. And least prescribed generics are simvastatin and trimetazidine dihydrochloride.

Table 2: Number of times a generic is repeated in collected prescriptions.

Sr. No.	GENERICS	Repetition (n)	%age (n/150×100)
1	GLYCERYL TRINITRATE	17	11
2	ASPIRIN	146	97
3	ATORVASTATIN	93	62
4	BISOPROLOL	30	20
5	METOPROLOL	26	17.3
6	NEBIVOLOL	8	5.3
7	CLOPIDOGRIL	70	46.67
8	LISINOPRIL	18	12
9	ISOSORBIDEMONONITRATE	33	22
10	AMLODIPINE	25	16.67
11	FUROSEMIDE	40	26.67
12	SPIRANOLACTONE	31	20.6
13	LOSARTAN K	30	20
14	DIGOXIN	9	6
15	ROSUVASTATIN	6	4
16	GLIMEPRIDE	5	3
17	GLICLIZIDE	3	2
18	METFORMIN	6	4
19	SIMVASTATIN	2	1.3
20	OMEPRAZOLE	12	8
21	CARVIDIOL	17	11.3
22	GLIBINCLAMIDE	2	1.3
23	WARFARIN	5	3
24	TRIMETAZIDIN DIHYDROCHLORIDE	2	1.3

Generics listed in **Table 2** were prescribed by the name of different brands that are available in Pakistan by the different manufacturers. We extracted brands from the prescriptions and then tabulated against number of repetitions. We also calculate the percentage of repetition of a brand, by dividing repetitions to total collected number of prescriptions, that were 150. Data given in **Table 3** is presenting the different brands prescribed for cardiac patient and it is found that most prescribed brand in heart diseases is ascard that contains aspirin. That prevent the patient from myocardial infarction and heart attack. Collected data was categorized on the basis of

generics prescribed to the different cardiac patients. Then find out how many times a generic was prescribed and provide in the column as the number of repetitions. Then these repetitious generics were converted into percentage by dividing repetition to the total number of prescriptions that were 150. Data given in **Table 2** is presenting that aspirin is most important drug in the prescriptions of heart diseases. It is the mostly prescribed medicine in cardiac patient and it is found in 146 prescriptions out of 150. And least prescribed generics are simvastatin and trimetazidine dihydrochloride.

Table 3: Number of times a brand is repeated in collected prescriptions.

Sr. No.	Generics	Brands	Repetition (n)	%age (n/150×100)
1	ASPIRIN	Ascard	96	64
		Loprin	6	4
		Doloprin	13	8.60
2	CLOPIDOGRIL	Norplat	5	3.33
		Noclot	27	18
		Lowplate	33	22
		Clovido	3	2
		ProgreLAP	2	1.33
3	ATORVASTATIN	Atorva	61	40.6
		Lipitor	1	0.60
4	AMLODIPNIE	Amodip	15	10
		Megadip	2	1.33
		Ampress	5	3.33
5	NEBIVOLOL	Nebil	2	1.33
		Byscard	4	2.66
6	METOPROLOL	Merol	27	18
		Carsel	2	1.33
7	SPIRANOLACTONE+FUROSEMIDE	Spiromide	27	18
8	CARVIDOLOL	Carvidol	3	2
		Carveda	3	2

DISCUSSION

Data presenting in tables is collected from prescriptions of cardiac patients that were taken from out-patient department of different hospitals and some were taken from clinics. Data is actually collected to find which heart disease is common in our society, and which drug and brand is mostly prescribed in our society. This data of 150 prescriptions provides information about the prescription trend for the cardiac patients.

Data given in **Table 1** is presenting occurrence of common heart diseases in different age groups of males and females. It was found that hypertension is mostly occur in age ranging from 46-55 years and it is 12% in males and 7% in females. Hypertension was least occurred in age group of 25-35 years and 76-85 years. Hyperlipidemia found mostly in age ranging from 46-55 years (6% in males and 5% in females) and 66-75 years and was least found in age of 25-35 and 76 -85 years. Angina is mostly occurred in age ranging from 46-55 years (2.60% and males and 0% in females) and is least found in age of 25-35 years. Diabetes in cardiac patient was also found mostly in age ranging from 46-55 years that is 2% in males and 3% in females. Because diabetes may leads the patient towards the cardiac diseases. However myocardial infarction, congestive heart failure and NSTEMI were least found diseases [11, 12].

Data given in **Table 2** is presenting how many times a generic used in cardiac diseases was prescribed. It also provides information about which drug is mostly use in cardiac diseases. From collected data it was found that aspirin is most prescribed drug for cardiac patients which act as antiplatelet and make the blood thin, so it is the most common drug of cardiac prescriptions. Most important reason for prescribing aspirin is to prevent the patient from heart attack. Least prescribed drugs in cardiac diseases were simvastatin, trimetazidine dihydrochloride and glibinclamide that were found as 1.30% of each out of 150 prescriptions. Other commonly prescribed drugs were atorvastatin, clopidogrel, bisoprolol and spirinolactones that were 62% 46.67%, 20% and 20.6% respectively.

CONCLUSION

It is concluded from found prescription trend in our society that aspirin is mostly prescribed drug for cardiac patients under the brand ascard that provide anaphylactic treatment for heart attack. And hypertension is most common cardiac complication that found in our society, mostly in males. Control of cardiac diseases is necessary for a healthy society. So health care providers must use to prescribe more effective and suitable medicines with cost effective brands to the users. However the prescription trend running in our society is effective and efficacious to

stabilize the patients bearing heart diseases. Moreover, there should be the conduction of some

awareness programs for general society to prevent cardiac diseases.

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