

Prescription pattern of cardiovascular drugs in intensive cardiac care unit patients in a tertiary care hospital

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ABSTRACT

Background: Cardiovascular diseases (CVD) account for high morbidity and mortality all over the world. A study of prescription pattern ensures rational pharmacotherapy and assures quality medical care to the patients. The aim was to observe the prescribing pattern of cardiovascular drugs among the patients admitted to intensive cardiac care unit (ICCU).

Methods: Prior permission from the Institutional Ethics Committee was obtained, and a prospective study of cardiovascular drugs was conducted on 100 consecutive patients admitted in ICCU of the Basaveshwar Teaching and General Hospital, Gulbarga. The duration of the study will be of 12 months from June 2012 to May 2013. The prescriptions of the patient who are treated during the course of the study will be audited prospectively using a specially designed form to record the required information. The data were statistically analyzed and presented as counts and percentages.

Results: Majority of the patients were male (59%), and most of the patients belonged to age group of 51-60 years. Most common drug class was antianginal drugs with aspirin and clopidogrel being the mostly used combination drug. Most of the drugs were prescribed rationally.

Conclusion: The present study concluded that most of the drugs were prescribed rationally according to current guidelines. In addition to prescribing drugs, patients should be educated about the risk factors of CVD and how they can be prevented.

Keywords: Intensive cardiac care unit, Prescription, Cardiovascular drugs, Aspirin

INTRODUCTION

Industrialization, urbanization, and associated lifestyle changes lead to increased prevalence of obesity, Type 2 diabetes mellitus, and metabolic syndrome, which are important risk factors for atherosclerosis and also for cardiovascular diseases (CVD).¹ CVD are a major

contributor to the global burden of disease among the non-communicable diseases.²

CVD account for high morbidity and mortality all over the world.³ CVD's, which were responsible for <10% of all deaths at the beginning of last century, now cause about 30% of the deaths globally.⁴ A total of nearly 64 million

cases of CVD are likely in the year 2015.⁵ 80% of global CVD-related deaths now occur in low and middle-income nations, which cover most countries in Asia.⁶

In India, the leading cause of death is CVD.⁷ The World Health Organization estimates that 60% of the world's cardiac patients will be Indian by 2010.⁸ Even assuming no increase in CVD risk factors, India will notice a large number of people between 35 and 64 years die of CVD over the next 30 years as well as an increasing level of morbidity due to CVD.⁹ This trend is particularly alarming because of its potential impact on one of Asia's fastest growing economies.⁸

Drugs play an important role in improving human health and promoting well-being. However, to produce the desired effect, they have to be safe and efficacious and have to be used rationally.¹⁰

In addition to CVD burden, errors in prescription are not uncommon and could be due to ignorance¹¹ or inadequate knowledge about the disease¹² and pharmacology of the drugs prescribed.¹³ Erroneous prescriptions are recognized even in the tertiary care hospital.¹⁴

The prescription pattern study helps to evaluate these problems and suggest modifications in prescribing practices of physicians. This practice ensures rational pharmacotherapy and assures quality medical care to the patients. In the developing countries, drug cost is a major concern for both health care providers and the beneficiaries, and, therefore, the rational use of drugs plays a pivotal role in cost minimization and optimal utilization of the available funds.¹⁵ Hence, the present study was undertaken to evaluate the prescription patterns of cardiovascular drugs among the patients admitted to the intensive cardiac care unit (ICCU) unit of Basaveshwar Teaching and General Hospital (BTGH) attached to Mahadevappa Rampure Medical College, Gulbarga.

METHODS

A prospective study of cardiovascular drugs was conducted on the patients admitted to cardiology unit of the BTGH, Gulbarga.

Ethical approval

Ethical approval was obtained from the Institutional Ethics Committee of Mahadevappa Rampure Medical College, Gulbarga.

Study participants

Patients admitted in ICCU and on cardiovascular drugs at BTGH, attached to Mahadevappa Rampure Medical College.

Duration of study

The duration of the study was of 12 months from June 2012 to May 2013.

Sampling

100 consecutive patients admitted in ICCU and receiving cardiovascular drugs were included in the study.

Study procedure

The prescriptions of the patient who were treated during the course of the study were audited prospectively using a specially designed form to record the required information.

Statistical analysis

The data collected were analyzed statistically and presented as counts and percentages.

RESULTS

Most of the patients (39%) were in the age group of 51-60 years, followed by 27% patients in the age group of 61-70 years. Most of the patients were diagnosed with myocardial infarction (54%). Patients had comorbid conditions such as hypertension (29%), diabetes mellitus (27%), and dyslipidemia (11%). The most common route of administration of drugs was oral (Figure 1).

DISCUSSION

Cardiac patient in an ICCU hanging on to the thread of life is a real challenge to the attending doctors. Prompt high-level care can make the difference between life and death.

Table 1: Gender distribution of patients.

Gender	Number of patients	Percentage
Male	59	59
Female	41	41
Total	100	100

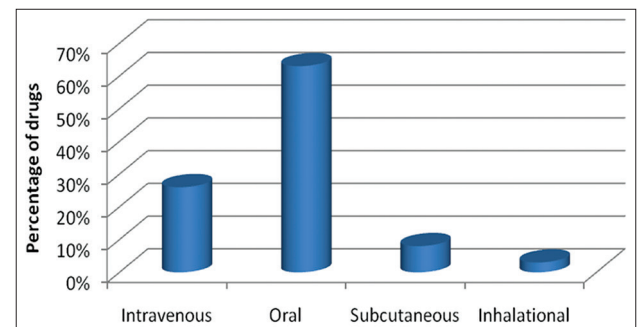


Figure 1: Route of administration of drugs.

Table 2: Different cardiovascular drugs used in patients.

Name of drug	Number of patients	Percentage
Antianginal		
Nitroglycerine	43	43
Isosorbide mononitrate	37	37
Nicorandil	6	6
Ivabradine	5	5
Ranolazine	2	2
Isosorbide dinitrate	3	3
Hypolipidemics		
Atorvastatin	60	60
Rosuvastatin	23	23
Antiplatelet agents		
Clopidogrel	39	39
Aspirin	35	35
Anticoagulants		
Low molecular weight heparin	66	66
Acenocoumarol	1	1
Warfarin	1	1
Beta blockers		
Metoprolol	41	41
Carvedilol	20	20
Nebivolol	1	1
Propranolol	1	1
Angiotensin converting enzyme inhibitors		
Ramipril	54	54
Quinapril	1	1
Diuretics		
Furosemide	22	22
Spiroglactone	4	4
Torsemide	4	4
Inotropes		
Dobutamine	10	10
Dopamine	9	9
Digoxin	4	4
Noradrenaline	3	3
Calcium channel blockers		
Amlodipine	11	11
Cilnidipine	5	5
Nimodipine	4	4
Angiotensin receptor blockers		
Telmisartan	9	9
Losartan	5	5
Olmisartan	1	1
Fibrinolytics		
Streptokinase	24	24
Retepase	1	1
Tenecteplase	1	1
Antiarrhythmics		
Amiodarone	6	6
Lignocaine	1	1
Alpha blocker		
Prazosin	1	1

Table 3: Different cardiovascular drug combinations used.

Combinations	Number of patients	Percentage
Aspirin+clopidogrel	76	76
Aspirin+clopidogrel+atorvastatin	5	5
Aspirin+atorvastatin	2	2
Ramipril+hydrochlorothiazide	2	2
Telmisartan+amlodipine	2	2
Losartan+amlodipine	1	1
Telmisartan+hydrochlorothiazide	1	1
Furosemide+amiloride	1	1
Torsemide+spironolactone	1	1
Amlodipine+atenolol	1	1
Atorvastatin+fenofibrate	1	1

Considering the precarious condition of the patient and the sheer number of drugs to be employed in the treatment, the physician has to weigh the pros and cons of each and every drug before using it.

Keeping this in mind, the present study was planned to identify the prescription pattern of cardiovascular drugs in the cardiology unit of BTGH, Gulbarga.

Out of 100 patients, 59% patients were male, and 41% were females (Table 1). This is in concordance with other similar studies.^{1,16} It is observed that a maximum number of patients, i.e., 39% were in the age group of 51-60 years, followed by 27% patients in the age group of 61-70 years. This correlates with many studies which show increased the risk of coronary heart disease with increasing age under 65 years.

Most common diagnosis was a myocardial infarction (54%) which was similar to observations made in other studies.^{16,17} The reason for the high incidence of myocardial infarction is multifactorial. Some of these high-risk factors included a high fatty and energy-rich diet, smoking, alcoholism and a sedentary lifestyle, in addition to associated risk factors such as obesity, insulin resistance, and Type 2 diabetes mellitus.^{18,19}

The present study showed that patients were having comorbid conditions such as hypertension (29%), diabetes mellitus (27%), and dyslipidemia (11%) which are also risk factors for CVD. In addition to prescribing drugs, patients should be educated about the risk factors of CVD and how they can be prevented.

Most frequently prescribed drug class was antianginal drugs (96%) (Table 2). This correlates with observations made in another study in Miraj.¹⁶ Most frequently prescribed drug was low molecular weight heparin (66%). Aspirin+clopidogrel was the most common combination used (Table 3).

One of the limitations of the study could be the wide range of cardiovascular drugs covered. Despite the limitations, the information collected in this study could be a pointer to the trends in the cardiovascular drugs prescription. The present study could serve as a framework for further studies to investigate the scope for educational intervention in improving prescribing practices.

CONCLUSION

The present study concluded that most of the drugs were prescribed rationally according to current guidelines. In addition to prescribing drugs, patients should be educated about the risk factors of CVD and how they can be prevented.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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