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Original Research

Assessment of drug utilization in cardiovascular diseases

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ABSTRACT:

Background: Eighty percent of deaths from cardiovascular diseases (CVDs) occur in developing nations. The present study was conducted to assess drug utilization in cardiovascular disease. **Materials & Methods:**96 medical practitioners were enrolled. Parameters such as average number of drugs per prescription, percentage of the drugs prescribed by their generic names, percentage of the prescriptions with antibiotics prescribed, percentage of the prescriptions with injections prescribed, and percentage of the drugs prescribed from the essential drug list was recorded. **Results:** Average number of drugs prescribed per prescription (≤3) was seen in 11%, percentage of drugs prescribed by generic name (100%) in 34%, percentage of prescriptions with an antibiotic prescribed (≤30%) in 35%, percentage of prescriptions with an injection prescribed (≤10%) in 98% and percentage of drugs prescribed from the national EDL (100%) in 96%. Cardiovascular drugs prescribed were ACE inhibitors in 75%, beta blockers in 40%, calcium channel blockers in 12%, antiplatelets in 82%, anticoagulants in 58%, thrombolytics in 15%, diuretics in 63% and statin in 80%. The difference was significant (P< 0.05). **Conclusion:** Antiplatelets, anticoagulants, thrombolytics, ACE inhibitors, beta blockers, diuretics, and statins were among the cardiovascular medications recommended.

Key words: anticoagulants, cardiovascular disease,thrombolytics

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INTRODUCTION

Eighty percent of deaths from cardiovascular diseases (CVDs) occur in developing nations. CVDs have become the main cause of death. According to mortality data from the Million Death Study's first phase, cardiovascular diseases (CVDs) account for 1.7–2 million fatalities in India each year, making them the top cause of death.[1]

The greatest cause of CVD, accounting for more than 35% of the disease burden, is coronary artery disease.[2]Cardiovasculardiseases (CVD) are the major reason of mortality among noncommunicable diseases (NCDs), constituting 26% in India. Relative to other NCDs, deprived quality of life and high mortality rate is mounting with CVDs regardless of highly developed health-care facilities.[3,4] In India, patients with acute coronary syndrome (ACS) have higher rate of ST-elevation myocardial infarction (STEMI) than do patients in developed countries; the treatment options differ between rich and poor which significantly altered mortality and morbidity. Women develop CVD at older age and have greater comorbidities than men, though treatment and outcome did not differ after adjusting potential confounders.[5]

Research on drug use makes it easier to identify clinical drug use and how it affects the healthcare system. One such metric that shows clinical drug use is the defined daily dose (DDD), which is described as "the assumed average maintenance dose per day for a drug used for its main indication in adults.[6]The present study was conducted to assess drug utilization in cardiovascular disease.

MATERIALS & METHODS

The present study comprised of 96 medical practitioners of both genders. All gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. The WHO prescribing indicators were used to evaluate the prescription pattern. A number of parameters were noted, including the average number of medications

per prescription, the proportion of prescriptions written under generic names, the proportion of prescriptions containing antibiotics, the proportion of prescriptions containing injections, and the proportion of prescriptions originating from the essential drug list. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Pattern of prescription writing using the WHO prescribing indicators

Prescribing Indicators	Percentage
Average number of drugs prescribed per prescription (≤3)	11%
Percentage of drugs prescribed by generic name (100%)	34%
Percentage of prescriptions with an antibiotic prescribed (≤30%)	35%
Percentage of prescriptions with an injection prescribed (≤10%)	98%
Percentage of drugs prescribed from the national EDL (100%)	96%

Table I, graph I shows that average number of drugs prescribed per prescription (≤3) was seen in 11%, percentage of drugs prescribed by generic name (100%) in 34%, percentage of prescriptions with an antibiotic prescribed (≤30%) in 35%, percentage of prescriptions with an injection prescribed (≤10%) in 98% and percentage of drugs prescribed from the national EDL (100%) in 96%.

Graph I Pattern of prescription writing using the WHO prescribing indicators

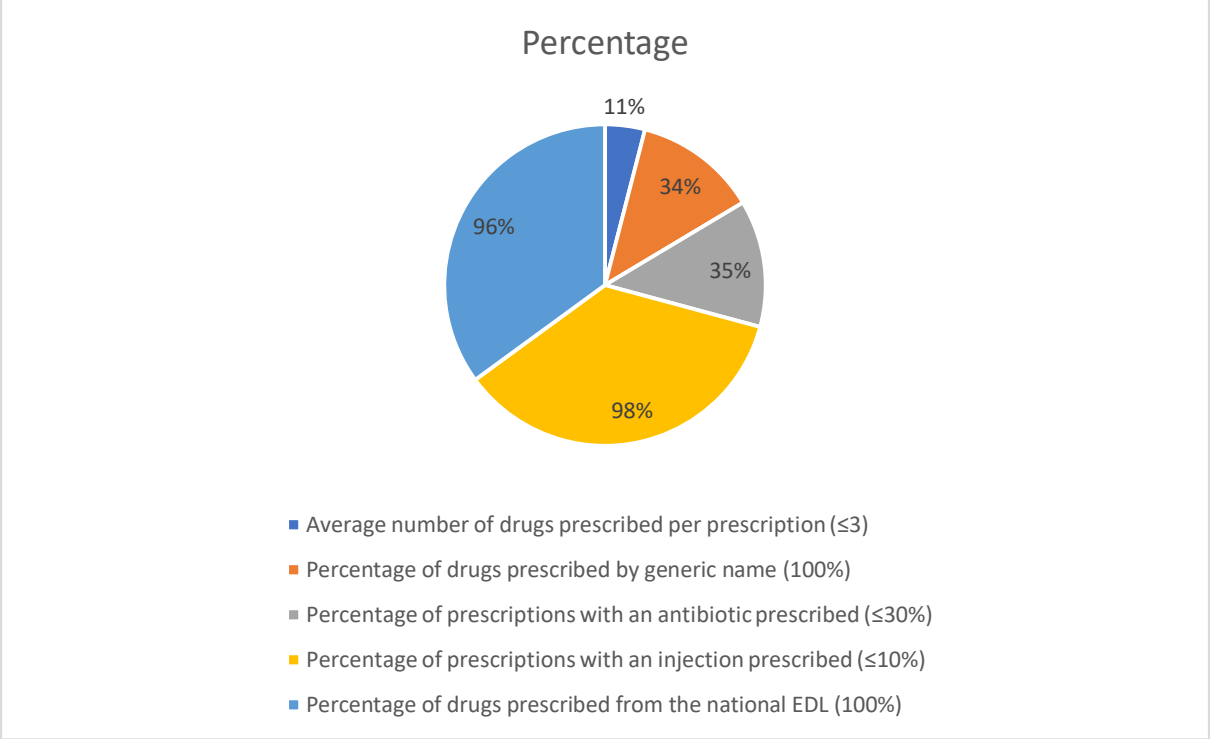
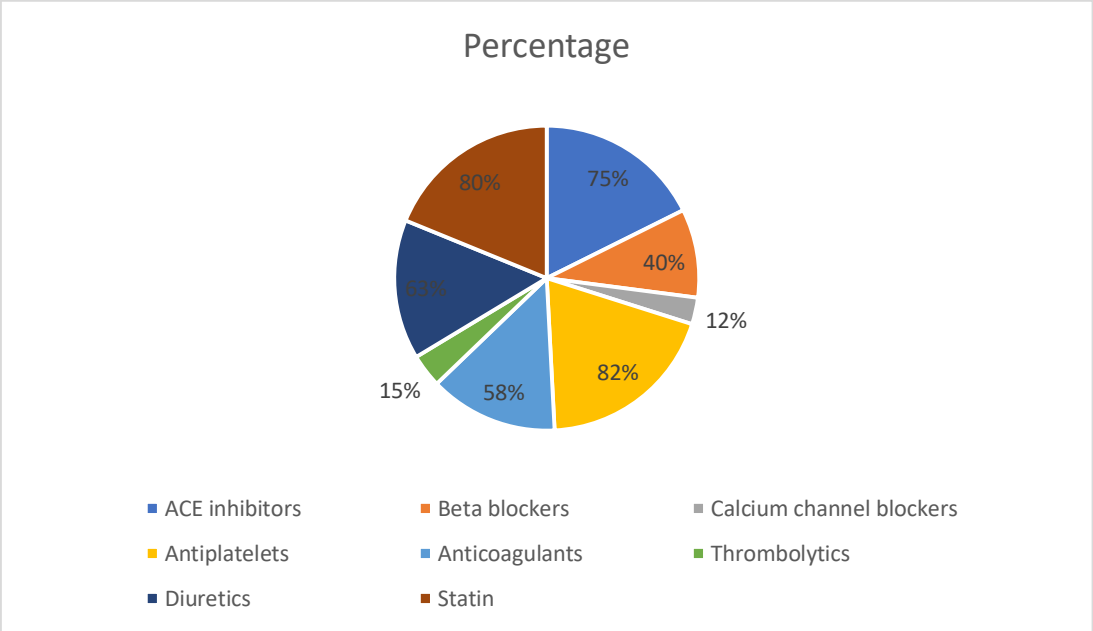


Table II Cardiovascular drugs prescribed

Cardiovascular drugs	Percentage	P value
ACE inhibitors	75%	
Beta blockers	40%	
Calcium channel blockers	12%	
Antiplatelets	82%	
Anticoagulants	58%	
Thrombolytics	15%	
Diuretics	63%	
Statin	80%	

Table II, graph II shows that cardiovascular drugs prescribed were ACE inhibitors in 75%, beta blockers in 40%, calcium channel blockers in 12%, antiplatelets in 82%, anticoagulantsin 58%, thrombolytics in 15%, diuretics in 63% and statin in 80%. The difference was significant (P< 0.05).

Graph II Cardiovascular drugs prescribed



DISCUSSION

In India, cardiovascular illnesses cause 1.5 million fatalities every year. 57% of all stroke deaths and 24% of all deaths from coronary events are associated with hypertension. In South Asia, hypertension is the third most significant risk factor for the burden of disease that may be attributed to it.[7,8] Arguably, the most significant risk factor for cardiovascular, cerebrovascular, and renal disease is hypertension, which can be changed with prompt detection and prompt treatment.[9]One of the biggest challenges to worldwide public health care is hypertension. According to predictions made by the World Health Organization (WHO), 1.5 billion people worldwide will probably have hypertension by 2025. In India, the estimated prevalence of hypertension is 29%.[10,11] The impact that such guidelines have on the selection of therapeutic drugs can be evaluated and examined through the use of pharmacoepidemiological investigations, such as drug utilization and prescription pattern studies. Evidence-based clinical research has been shown to be inadequately integrated into clinical practice, which may lead to less-than-ideal patient care procedures.[12]The present study was conducted to assess drug utilization in cardiovascular disease.

We found that average number of drugs prescribed per prescription (≤3) was seen in 11%, percentage of drugs prescribed by generic name (100%) in 34%, percentage of prescriptions with an antibiotic prescribed (≤30%) in 35%, percentage of prescriptions with an injection prescribed (≤10%) in 98% and percentage of drugs prescribed from the national EDL (100%) in 96%. George et al[13] examined the factors that influence individuals with coronary artery disease (CAD) to utilize cardiovascular drugs. Patients with and without CAD were the two groups that were studied. To find the factors influencing the CAD group's use of cardiovascular drugs, multivariate logistic regression was employed.Out of the 574 patients, 57% were under 60 years old and 65% were men. Platelet inhibitors (88.7%), statins (76.3%), ACE-inhibitors/Angiotensin receptor blockers (72%), beta-blockers (58%) and heparin (57%), were the five medication types most frequently administered. In 71% of patients, polypharmacy (>5 medicines) was identified. 72.6 percent of patients had a diagnosis of CAD. Patients with CAD had longer median treatment regimens and considerably higher medication dosages.72.6 percent of patients had a diagnosis of CAD. CAD patients required more CCU stays and a substantially greater median number of medications ($p < 0.0001$). The CAD group's reduced drug use was found to be associated with renal dysfunction for ACE inhibitors [0.18 (0.09–0.36)], ST-elevation myocardial infarction for calcium channel blockers [0.29 (0.09–0.93)], and brady-arrhythmias for beta-blockers [0.3 (0.2–0.7)].

We observed that cardiovascular drugs prescribed were ACE inhibitors in 75%, beta blockers in 40%, calcium channel blockers in 12%, antiplatelets in 82%, anticoagulants in 58%, thrombolytics in 15%, diuretics in 63% and statin in 80%. Murphy et al[14]undertook a systematic review to determine if cardiovascular medication utilization and adherence patterns differ for rural versus urban patients.Fifty-one studies were included of fair to good quality (median STROBE score 17.5). Although pooled unadjusted analyses suggested that patients in rural areas were less likely to receive evidence-based cardiovascular medications, pooled data from 21 studies adjusted for potential confounders indicated no rural–urban differences. The high heterogeneity observed ($I2 = 97\%$) was partially explained by treatment setting (hospital, ambulatory care, or community-

based sample), age, and disease. Adherence did not differ between urban versus rural patients.

CONCLUSION

Authors found that antiplatelets, anticoagulants, thrombolytics, ACE inhibitors, beta blockers, diuretics, and statins were among the cardiovascular medications recommended.

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