ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

ORIGINAL RESEARCH

Drug utilization pattern in cardiovascular disease at teaching hospital

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Abstract
Background: Cardiovascular diseases (CVDs) have emerged as the leading cause of mortality with developing countries. The present study was conducted to assess drug utilization pattern in cardiovascular disease in teaching hospital.
Materials & Methods: 105 medical doctors of both genders were provided with a questionnaire about drug utilisation pattern in CVDs by doctors and asked to fill it.
Results: Average number of drugs prescribed per prescription(≤3) was seen in 15%, percentage of drugs prescribed by generic name (100%) in 25%, percentage of prescriptions with an antibiotic prescribed (≤30%) in 38%, percentage of prescriptions with an injection prescribed (≤10%) in 97% and percentage of drugs prescribed from the national EDL(100%) in 95%. Common cardiovascular drugs prescribed by doctors were thrombolytics in 15%, ACE inhibitors in 72%, beta blockers in 44%, calcium channel blockers in 12%, diuretics in 64% and statin in 80%, antiplatelets in 87% and anticoagulantsin58%.The difference was significant (P< 0.05).
Conclusion: Cardiovascular drugs prescribed by doctors were antiplatelets, anticoagulants, thrombolytics, ACE inhibitors, beta blockers, diuretics and statin. Appropriate prescription writing improvises treatment compliance in the patients.
Key words: CVD, Drug, Ace inhibitors

Introduction

Cardiovascular diseases (CVDs) have emerged as the leading cause of mortality with developing countries accounting for 80% of cardiovascular deaths. It is the largest cause of deaths in India leading to 1.7–2 million deaths annually.[1] 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.[2]
Hypertension is linked to 57% of all stroke deaths and 24% of all coronary event deaths.[3] Hypertension is ranked as the third most important risk factor for attributable disease burden in South Asia. Hypertension is arguably the single most important risk factor for

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

cardiovascular, cerebrovascular, and renal disease that can be modified by timely detection as well as decisive therapeutic intervention.[4]

Drug utilization research facilitates identification of clinical drug utilization and its impact on health-care system. Continuous audit in critical care would provide insights into current practice and feedback for rationalizing prescribed practices.[5]The present study was conducted to assess drug utilization pattern in cardiovascular disease in teaching hospital.

Materials & Methods

The present study comprised of 105 medical doctors of both genders. All gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. 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. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I Pattern of prescription writing by doctors

Prescribing indicators	Percentage
Average number of drugs prescribed per prescription (≤3)	15%
Percentage of drugs prescribed by generic name (100%)	25%
Percentage of prescriptions with an antibiotic prescribed (≤30%)	38%
Percentage of prescriptions with an injection prescribed (≤10%)	97%
Percentage of drugs prescribed from the national EDL (100%)	95%

Table I, graph I shows that average number of drugs prescribed per prescription (≤3) was seen in 15%, percentage of drugs prescribed by generic name (100%) in 25%, percentage of prescriptions with an antibiotic prescribed (≤30%) in 38%, percentage of prescriptions with an injection prescribed (≤10%) in 97% and percentage of drugs prescribed from the national EDL (100%) in 95%.

Graph I Pattern of prescription writing by doctors

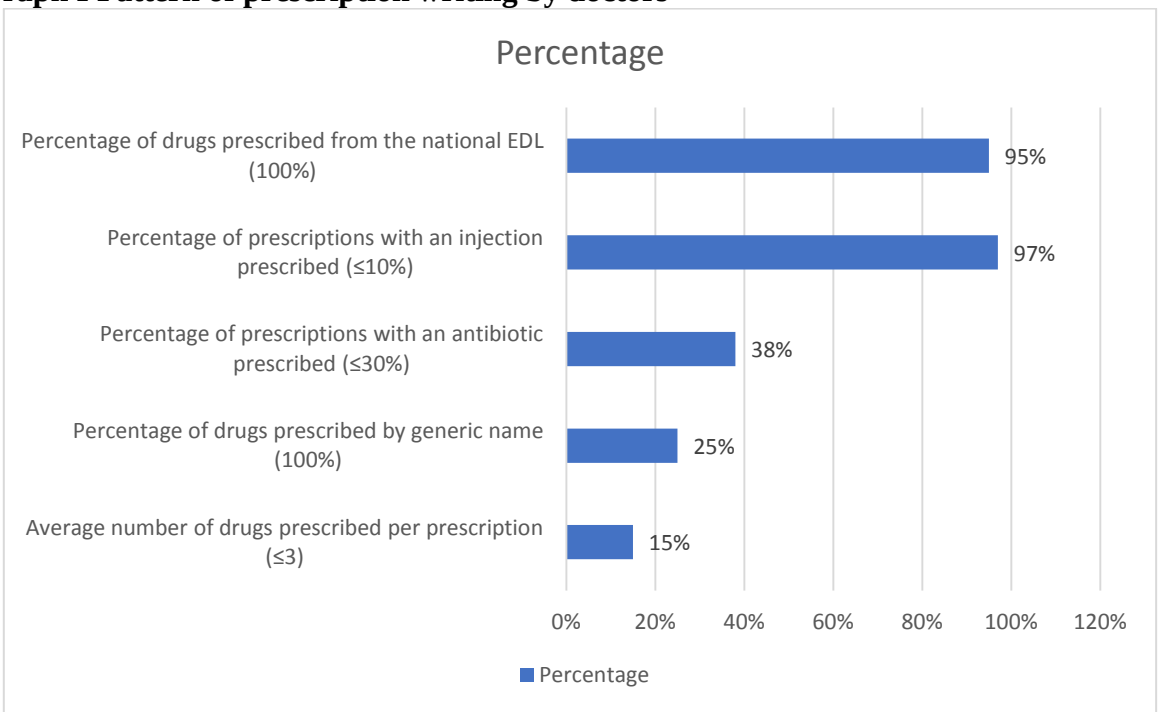

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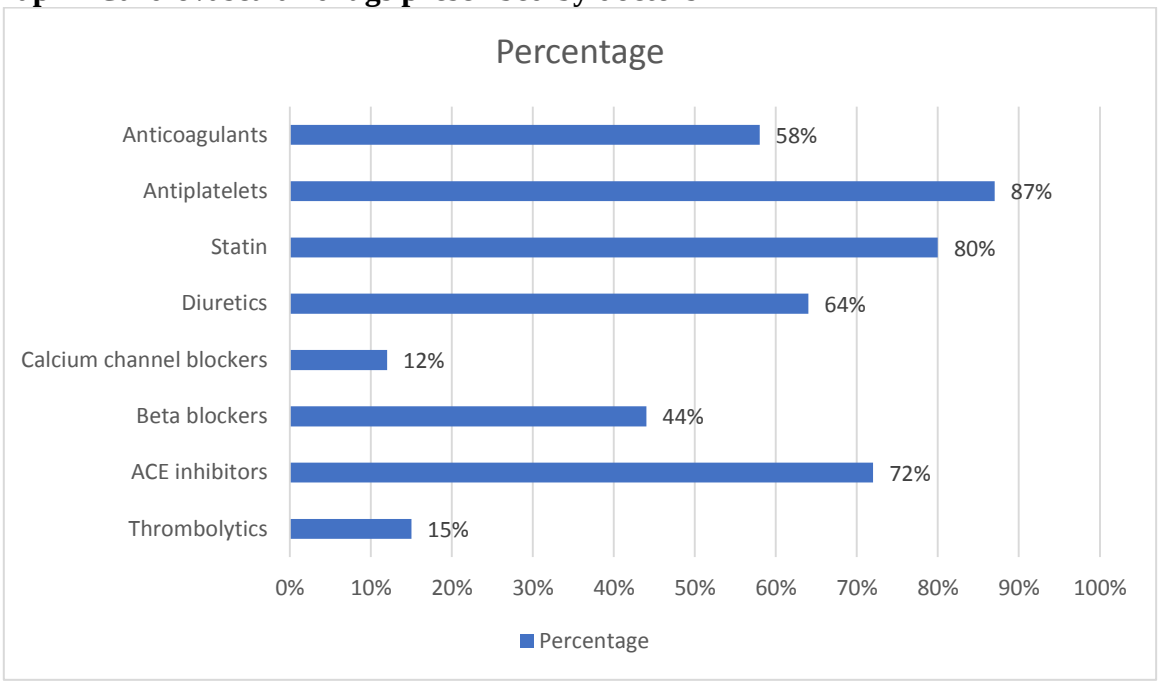
Table II Cardiovascular drugs prescribed by doctors

Drugs	Percentage	P value
Thrombolytics	15%	0.02
ACE inhibitors	72%	
Beta blockers	44%	
Calcium channel blockers	12%	
Diuretics	64%	
Statin	80%	
Antiplatelets	87%	
Anticoagulants	58%	

Table II, graph II shows that cardiovascular drugs prescribed by doctors were thrombolytics in 15%, ACE inhibitors in 72%, beta blockers in 44%, calcium channel blockers in 12%, diuretics in 64% and statin in 80%, antiplatelets in 87% and anticoagulants in 58%. The difference was significant (P< 0.05).

Graph I C**ardiovascular drugs prescribed by doctors**



Discussion

Cardiovascular disease (CVD) has been the most important cause of death in the United States and in India.[6] Acute myocardial infarction (AMI) is important type of congestive heart disease.[7,8] It has been the major cause of death in developing countries like India, regardless of impressive development in their prevention, diagnosis and treatment since thirty years.[9,10] The present study was conducted to assess drug utilization pattern in cardiovascular disease in teaching hospital.

We found that average number of drugs prescribed per prescription (≤3) was seen in 15%, percentage of drugs prescribed by generic name (100%) in 25%, percentage of prescriptions with an antibiotic prescribed (≤30%) in 38%, percentage of prescriptions with an injection prescribed (≤10%) in 97% and percentage of drugs prescribed from the national EDL (100%) in 95%. George et al[11] found that of 574 patients, 65% were males, 57% were <60 years. The five commonly prescribed drug classes were platelet inhibitors (88.7%), statins (76.3%), ACE-inhibitors/Angiotensin receptor blockers (72%), beta-blockers (58%) and heparin (57%). Poly-pharmacy (>5 drugs) was noticed in 71% of patients. A majority of patients had

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

diagnosis of CAD (72.6%). CAD patients received significantly higher median number of drugs and had longer duration of CCU stay. Bilateral renal artery stenosis 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)] were identified as determinants of decreased drug use in CAD group.

We found that cardiovascular drugs prescribed by doctors were thrombolytics in 15%, ACE inhibitors in 72%, beta blockers in 44%, calcium channel blockers in 12%, diuretics in 64% and statin in 80%, antiplatelets in 87% and anticoagulants in 58%. Datta et al[12] analyzed the utilization pattern of antihypertensives used for the treatment of hypertension at a tertiary care hospital. The calcium channel blockers were the most frequently used antihypertensive class of drugs (72.3%). Amlodipine (55.6%) was the single most frequently prescribed antihypertensive agent. The utilization of thiazide diuretics was 9%. Adherence to the National List of Essential Medicines (NLEMs) was 65%. The combination therapy was used more frequently (51.5%) than monotherapy (48.8%). The use of angiotensin-converting enzyme inhibitors/angiotensin 2 receptor blockers was 41.4% in diabetes.

Tanna et al[13] found that out of 100 patients, 82% patients were males and maximum e.g.45% were of age >60 years. The percentages of patients who received antiplatelet agents, thrombolytics, beta blockers, ACE inhibitors, calcium channel blockers, antianginal drugs, hypolipidaemics, opioids and antacids were 97%, 43%, 22%,78%, 15%, 55%, 84%, 73%, and 81% respectively. Number of drugs per encounter was 9.38% with dominance of generic prescription.

Naliganti et al[14]found that of the total admissions, 58.57% (55.19 ± 15.19 years) were male and 41.43% (56.64 ± 15.28 years) were female. Among prescribing indicators, percentage of drugs with generic names was least accounted with 26.86% and 18.95% during hospitalization and discharge, respectively. A mean of 11.55 (hospitalization) and 6.55 (discharge) drugs were prescribed per prescription. Antiplatelet (72.86%) and statin (80.62%) use was predominated during complete therapy.

The limitation the study is small sample size.

Conclusion

Authors found that cardiovascular drugs prescribed by doctors were antiplatelets, anticoagulants, thrombolytics, ACE inhibitors, beta blockers, diuretics and statin. Appropriate prescription writing improvises treatment compliance in the patients.

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