



The Prescribing Pattern of Medications in the Cardiology Outpatient Department of a Public Hospital

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

Aim: This study aimed to describe the prescribing pattern of medications in the cardiology outpatient department of a public hospital.

Methodology: This is a retrospective study included collecting data from outpatient pharmacy prescriptions from a public hospital in Alkharj. The data was analyzed using Microsoft Excel and after that the descriptive data was represented as percentages and frequencies.

Results: The most prescribed medication was aspirin (11.6%) followed by bisoprolol (8.06), atorvastatin (7.5%) and furosemide (6.79%). Most of the prescriptions were written by residents (85.15%). Most of the medications were prescribed as tablets (88.26%) and capsules (9.05%).

Conclusion: It is important to evaluate the prescribing pattern of medications in the cardiology department to ensure that these medications are prescribed appropriately and to increase the awareness of the health-care professionals about these medications.

Keywords: Cardiology; outpatient; prescribing pattern; medications.

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1. INTRODUCTION

Cardiovascular diseases are the most common cause of mortality and morbidity worldwide [1]. With advent of newer highly efficacious drugs and changing therapy guidelines, there's a need to identify the cardiologist preference and the prescribing patterns for rational use of medications [1]. The World Health Organization (WHO) reported that about 17.9 million people died from cardiovascular disease in 2016, representing 31% of all global deaths, of these deaths 85% are due to stroke and heart attack [2].

Prescription is a critical issue in the rational treatment [3]. Evaluation of drug prescribing pattern is an essential aspect of patient care, which also serves as a measure of the quality of the provided care. A new systematic analysis has ascertained that prescribing quality is a dimension requiring continuous evaluation [4]. Prescription pattern monitoring studies are tools for assessing the prescribing, dispensing, and the distribution of drugs prevailing in a particular locale. The main aim of such studies is to help in using medicines rationally [5].

Inappropriate prescribing pattern leads to an increase in the cost of medical treatment and also increases the morbidity and mortality rate [6]. Irrational prescription of drugs also leads to an increase in the occurrence of adverse drug events and also leads to the emergence of drug resistance [7]. Periodic review of medication usage in different hospitals provide a favorable feedback for treating doctors to plan, modify and strengthen clinical practices in order to deliver a rational and cost-effective treatment [8].

Monitoring of prescriptions and drug utilization studies can identify the problems and provide feedback to physicians so as to create awareness about irrational usage of medicines [6]. Therefore, this study aimed to describe the prescribing pattern of medications in the cardiology outpatient department of a public hospital.

2. METHODOLOGY

This is a retrospective study included collecting data from outpatient pharmacy prescriptions from a public hospital in Alkharj about the prescribing pattern of medications in the cardiology department.

All of the outpatients who received prescriptions from the cardiology department were included in the study. The prescriptions that were written by other departments were excluded from the study. Moreover, the prescriptions in other settings such as inpatient setting were excluded.

3. RESULTS AND DISCUSSION

The total number of outpatients who received prescriptions from the cardiology department between 1st of June to 31th of December was 707. Most of them were males (54.46%) and aged more than 49 years (77.51%). Table 1 shows the personal data of the patients.

Table 2 shows the most prescribed medications in the cardiology department. The most prescribed medication was aspirin (11.6%) followed by bisoprolol (8.06), atorvastatin (7.5%), furosemide (6.79%), clopidogrel (5.52%) and isosorbide dinitrate (5.38%).

Table 3 shows the level of prescribers. Most of the prescriptions were written by residents (85.15%) and 8.63% of the prescriptions were written by consultants.

Table 4 shows the dosage forms of the prescribed medications. Most of the medications were prescribed as tablets (88.26%) and capsules (9.05%).

Most of the medications were prescribed as tablets and capsules because most of the cardiovascular patients were elderly patients. Antiplatelets, diuretics and statins were the most prescribed medication class. The most prescribed medication was aspirin followed by bisoprolol, atorvastatin, furosemide and clopidogrel. Roy et al. [6] stated that the most commonly prescribed cardiovascular drugs in outpatient department are amlodipine, glyceryl trinitrate, metoprolol and atorvastatin [6]. Slathia et al. stated that the most commonly prescribed drugs were antiplatelets (23%) followed by statins (19.71%), β blockers (16%), Nitrates (11.70%) and angiotensin converting enzyme inhibitors (8.03%) [1].

Shanmugapriya et al. [9] stated the highest percentage of prescribed drugs in a tertiary care teaching hospital in Tamil Nadu were supplements which ranked first followed by the antidiabetic, antiplatelet, hypolipidemic, and anti-

hypertensive drugs [9]. Veeramani and Muraleedharan reported that the most commonly prescribed class of drugs were found to be antiplatelets (67.73%), lipidlowering (62.57%) and beta-blockers (49.51%) [10]. They stated also that the most commonly prescribed single drug was aspirin (59.93%) [10].

Ahmed et al. [11] found that antiplatelet drugs were prescribed frequently and that clopidogrel was prescribed mainly for patients more than 50 years old and aspirin also was prescribed mainly

for patients more than 50 years old [11]. Moreover, Kumar reported that antiplatelet drugs were prescribed commonly and that the most commonly prescribed antiplatelet was aspirin [12]. Ahmed and Menshawry reported that antihyperlipidemic drugs such as atorvastatin were prescribed frequently [13]. Bisoprolol and furosemide were also prescribed commonly in the present study. Ahmed et al. [14] stated that the prescribed antihypertensive drugs in the outpatient setting were amlodipine, Bisoprolol and Furosemide [14].

Table 1. The personal data of the patients

Variable	Category	Number	Percentage
Gender	Male	385	54.46
	Female	322	45.54
Age	10-19	4	0.56
	20-29	12	1.70
	30-39	29	4.10
	40-49	114	16.12
	50-59	160	22.63
	60-69	171	24.19
	70-79	142	20.08
	More than 79	75	10.61

Table 2. The most prescribed medications in the cardiology department

Medication	Number	Percentage
Aspirin	82	11.60
Bisoprolol	57	8.06
Atorvastatin	53	7.50
Furosemide	48	6.79
Clopidogrel	39	5.52
Isosorbide Dinitrate	38	5.38
Amlodipine	35	4.95
Ranitidine	31	4.39
Multivitamins	27	3.82
Omeprazole	24	3.40
B-Complex Vitamins	23	3.25
Hydrochlorothiazide	20	2.83
Captopril	19	2.69
Lisinopril	14	1.98
Olmesartan	14	1.98
Paracetamol	10	1.14
Folic Acid	10	1.41
Digoxin	10	1.41
Spironolactone	10	1.41
Simvastatin	10	1.41
Others	133	18.81

Table 3. The level of prescribers

Prescribers Level	Number	Percentage
Specialist	44	6.22
Resident	602	85.15
Consultant	61	8.63

Table 4. The dosage forms of the prescribed medications

Dosage forms	Number	Percentage
Tablet	624	88.26
Capsule	64	9.05
Injection Pen	8	1.13
Inhaler	3	0.42
Syrup	6	0.85
Gel	1	0.14
Eye Drops	1	0.14

4. CONCLUSION

It is important to evaluate the prescribing pattern of medications in the cardiology department to ensure that these medications are prescribed appropriately. There are several strategies to improve medications use that include implementing checking practice before dispensing the prescriptions and increasing the awareness of the health-care professionals about these medications.

CONSENT

It is not applicable.

ETHICAL APPROVAL

The data were collected after the approval of the study from hospital ethical committee. The data was analyzed using Microsoft Excel and after that the descriptive data was represented as percentages and frequencies.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

- Slathia I, Jadhav PR, Deb P, Verma S. Drug utilization study in Cardiology outpatient department at a tertiary care hospital. *Int J Basic Clin Pharmacol.* 2017;6(9):2276-2281.
- World Health Organization. Fact Sheets, Cardiovascular Diseases (CVDs); 2017. Accessed 26 January 2021.
- Available: [https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)).
- Akoria OA, Isah AO. Prescription writing in public and private hospitals in Benin city, Nigeria: The effects of an educational intervention. *Can J Clin Pharmacol.* 2008;15:e295-305.
- Song J, Zhang L, Li Y, Zeng L, Hu D, Liang Y. Indicators for assessing quality of drug use: A systematic literature review. *J Evid Based Med.* 2017;10:222-32.
- Jain S, Upadhyaya P, Goyal J, Kumar A, Jain P, Seth V, Moghe VV. A systematic review of prescription pattern monitoring studies and their effectiveness in promoting rational use of medicines. *Perspect Clin Res.* 2015;6(2):86-90.
- Roy US, Islam AM, Ahmed M, Khan MR, Sarker NR. Pattern of cardiovascular drugs use in outpatient department in a tertiary care hospital of Bangladesh. *BHJ.* 2017; 32(2):65-69.
- Louise S, Eskil J, Cecilia SL. Drug prescribing in public primary care centers Results from prescription studies 1988-1997 in Halland, Sweden. *Scand J Prim Health Care.* 2002;20:236-241
- Roy A, Patel NK. Prescribing patterns of cardiovascular drugs in cardiology outpatient department in a tertiary care hospital in Western Odisha. *Int J Basic Clin Pharmacol.* 2021;10(1):23-28.
- Shanmugapriya S, Saravanan T, Rajee SS, Venkatrajan R, Thomas PM. Drug prescription pattern of outpatients in a tertiary care teaching hospital in Tamil Nadu. *Perspect Clin Res.* 2018;9(3):133-138.
- Veeramani VP, Muraleedharan AP. Study on drug utilization pattern in cardiology outpatient department at tertiary care hospitals in South India: A prospective multicenter cross-sectional observational study. *IJMSPH.* 2020;9(5):321-328.

11. Ahmed NJ. Age and gender differences in the pattern of antiplatelet agents prescribing. J Pharm Res Int. 2020;32(13): 87-91.
12. Kumar VS. Assessment and drug utilization pattern on antiplatelet agents in cardiovascular patients-a prospective study in tertiary care hospital. IJPPS. 2019; 14(2):110-119.
13. Ahmed NJ, Menshaw MA. Atorvastatin prescribing pattern at a public hospital in Alkharj. J Pharm Res Int. 2020;32(31):19-24.
14. Ahmed NJ, Menshaw MA, Almalki ZS. Age-related prescribing patterns of antihypertensive medications. J Pharm Res Int. 2020;32(30):80-85.

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