



Prescribing Trends of Amlodipine in Outpatient Setting

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Author's contribution

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

Article Information

DOI: 10.9734/JPRI/2020/v32i530431

Editor(s):

(1) Dr. Mohamed Fathy, Assiut University, Egypt.

Reviewers:

(1) Zornitsa Spasova-Mitkova, Bulgaria.

(2) Heba Atia Yassa, Assiut University, Egypt.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/55478>

Original Research Article

Received 12 January 2020

Accepted 17 March 2020

Published 20 April 2020

ABSTRACT

Aim: This study aims to illustrate the Prescribing Trends of Amlodipine in Outpatient Setting in Al-Kharj city.

Methodology: This is a retrospective study that was conducted in a public hospital in Alkharj city. The outpatient prescriptions were reviewed to evaluate the prescription patterns of Amlodipine. The data were collected and analyzed using Excel software, the descriptive data were represented by frequencies and percentages.

Results: The majority of amlodipine prescriptions were for patients more than 40 years old. The most prescribed departments were internal medicine followed by emergency and cardiology department. Amlodipine was mainly prescribed by resident physicians.

Conclusion: Amlodipine is one of the most prescribed antihypertensive drugs. It is prescribed mainly by residents, many of them without sufficient experiences. This may lead to inappropriate prescribing patterns, as a result more efforts needed to increase the knowledge of prescribers regarding the appropriate use of cardiovascular medicines including amlodipine.

Keywords: Prescribing trends; prescribing patterns; amlodipine; outpatient.

1. INTRODUCTION

The goal of medication therapy to patients is to improve their quality of life. Drug plays a vital role in therapy but it should be used in the correct way with appropriate drugs, route, time, dosage regimen and appropriate duration as per clinical need [1]. Unsuitable usage of medication wastes resources and lessens the quality of patient's care. Drug and Therapeutic Committee in health care facilities can significantly improve the use of drug and decrease the management costs [2]. Essential drugs should be efficacious, safe and affordable and should be used rationally in order to improve health status [3].

The prescription is a legal document including directions for medication by a licensed practitioner to the pharmacist [4]. The prescription writing guidance is given by many organizations such as British National Formulary, World Health Organization practical manual on prescribing and Medical Council ethical codes of Nepal [5,6,7]. Many previous studies reported that the majority of doctors don't adhere to treatment guidelines. The appropriate prescribing has an incredible influence on drug therapy as well as patient's health [8,9].

Cardiovascular diseases (CVDs) generally affect the circulatory system which include many diseases such as hypertension, Ischemic heart disease, stroke, peripheral artery disease and congestive heart failure. There are many modifiable risk factors of CVDs which include tobacco use, an unhealthy diet, obesity, physical inactivity and abnormal blood lipid profile. [10] Today 30% of deaths observed globally due to CVDs including nearly 28% in middle and low-income countries and about 40% in high-income countries. The worldwide increase in CVD is the result of urbanization, industrialization and associated lifestyle alterations [11]. Numerous classes of medications are available for the management of CVDs. Commonly used drugs include beta blockers, vasodilators, calcium channel blockers, angiotensin-converting enzyme inhibitors, diuretics, angiotensin receptor blockers, lipid-lowering agents and antiplatelet agents [12]. One of the commonly prescribed cardiovascular drugs is Amlodipine. It is a medicine that used to treat many cardiovascular diseases including hypertension. It is also can be used in hypertensive patients to help in preventing prevent future heart disease, strokes and heart

attacks. Moreover, it is used to prevent angina caused by heart disease [13].

The study of prescribing pattern is important because it gives an idea to prescribers about monitoring and evaluation of the drugs and recommends necessary modifications if needed [14]. Several factors associated with inappropriate prescribing were unsafe and ineffective treatment, distress and unneeded economic burden to the patient and prolongation of illness [15,16]. Amlodipine is chosen in this study because it is used to treat several diseases such as angina and other conditions caused by coronary artery disease. In addition to that it is used to treat hypertension. Moreover, it is one of the commonly used medications.

This study aims to illustrate the prescribing trends of amlodipine in outpatient setting in a public hospital in Al-Kharj city.

2. METHODOLOGY

This is a retrospective study that was conducted in a public hospital in Alkharj city. The outpatient prescriptions were reviewed to evaluate the prescription patterns of Amlodipine. The inclusion criteria include all outpatient prescriptions that contains amlodipine in 2018.

The exclusion criteria include the prescriptions before or after 2018, the prescriptions that don't contain amlodipine and the prescriptions in inpatient setting.

The data were collected and analyzed using Excel software, the descriptive data were represented by frequencies and percentages.

This study was approved by the Institutional Review Board log number 2019-0153E.

3. RESULTS

Amlodipine was prescribed in 465 outpatient prescriptions during 2018 out of 3540 cardiovascular prescriptions (13.13%); the majority of the prescriptions were prescribed to Saudi patients (79.35%). These prescriptions were for 401 patients. Table 1 shows personal data.

About 50% of the patients were in the age level between 40-59 (49.46%). Table 2 shows the age of the patients.

The majority of the physicians who prescribed amlodipine were residents (74.83%). The level of the Prescribers was shown in Table 3.

Amlodipine were prescribed mainly by internal medicine department (51.61%). Table 4 shows

the departments that prescribed Amlodipine in the outpatient setting.

The majority of the patients didn't refill amlodipine prescription 342 out of 401 patients (85.28%). The frequency of prescribing amlodipine was shown in Table 5.

Table 1. Personal data

Variable	Category	Number	Percentage
Nationality	Saudi	369	79.35
	Non-Saudi	96	20.65
Gender	Female	274	58.92
	Male	191	41.08

Table 2. The age of the patients

Age	Number	Percentage
Less than 20	6	1.29
20-29	8	1.72
30-39	33	7.09
40-49	107	23.01
50-59	123	26.45
60-69	101	21.72
70-79	54	11.61
More than 80	33	7.09

Table 3. The level of the prescribers

Variable	Number	Percentage
Consultant	70	15.05
Resident	348	74.83
Specialist	47	10.11

Table 4. The departments that prescribed amlodipine in the outpatient setting

Department	Number	Percentage
Internal Medicine	240	51.61
Cardiology	73	15.69
Chest	6	1.29
E.N.T	1	0.21
Emergency	81	17.41
Gastroenterology	2	0.43
Infection Control	1	0.21
Nephrology	41	8.81
Neurology	12	2.58
obstetrics & gynecology	3	0.64
Psychiatry	1	0.21
Pediatrics	3	0.64
Urology	1	0.21

Table 5. The frequency of prescribing amlodipine

Variable	Number	Frequency
Patients who didn't refill amlodipine prescription	342	73.54
Patients who refill amlodipine prescription once	54	11.61
Patients who refill amlodipine prescription twice	5	1.07

4. DISCUSSION

Amlodipine was prescribed in 465 outpatient prescriptions during 2018 out of 3540 cardiovascular prescriptions (13.13%). The majority of the patients were female (58.92%). The present study demonstrated that Amlodipine is one of the most prescribed antihypertensive drugs; similarly Jhaj R, et al. reported that Atenolol, amlodipine and enalapril were the most frequently used individual drugs [17]. Moreover, Vishal R. Tandon et al stated that the most commonly prescribed antihypertensive drugs among Indian postmenopausal women were amlodipine, losartan, and telmisartan [18]. In contrast to that Yonas G. Tefera et al. demonstrated that diuretics were the most frequently prescribed drugs in cardiovascular patients [19].

The majority of the prescriptions were for patients more than 40 years old and this is rational because the prevalence of cardiovascular disease mainly hypertension increases with advancing age specially for women after 55 years old as reported by Harrison-Bernard and Raji [20] so they use cardiovascular medications including amlodipine more than younger patients and this result is in accordance with our study that showed female patients use amlodipine more than male.

The prescriptions were mainly written by residents who can make a decision (74.83), but usually they need to be under specialists or consultants' supervision.

The most prescribed department were internal medicine followed by emergency and cardiology so it is important to monitor cardiovascular medications specially in these departments. This result is rational because most of the outpatient setting medications are usually prescribed by emergency department. Moreover, cardiovascular medications are prescribed frequently in cardiology and internal medicine departments that include several cardiovascular cases.

About 85.28% of the patients didn't refill amlodipine prescription; this result shows the low adherence rate to amlodipine. Similarly, van der Laan et al. reported that adherence to cardiovascular medicines is often suboptimal [21]. Moreover, Ian M Kronish and Siqin Ye showed similar results and reported that approximately 50% of patients with

cardiovascular disease and/or its major risk factors have poor adherence to their prescribed medications [22].

5. CONCLUSION

The present study showed that amlodipine is one of the most prescribed cardiovascular drugs (13.13%). It is prescribed commonly for both male and female patients, particularly after the age of 40 due to increase the incidence of cardiovascular diseases as the population ages. It is prescribed mainly by residents, who can make a decision, but usually they need to be under specialists or consultants' supervision. Therefore, more efforts are recommended to monitor amlodipine therapy and to increase the knowledge of prescribers regarding the appropriate use of cardiovascular medicines including amlodipine by attending conferences, lectures and workshops.

CONSENT

As per international standard or university standard written patient consent has been collected and preserved by the author.

ETHICAL APPROVAL

It is not applicable.

ACKNOWLEDGEMENT

This Publication was supported by the Deanship of Scientific Research at Prince Sattam Bin Abdulaziz University.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/55478>