



Trends in the Outpatient Prescribing of Clopidogrel

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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 aims to evaluate the trends in outpatient prescribing of clopidogrel in order to guide the physicians to appropriate clopidogrel prescribing practice in Alkharj.

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 clopidogrel in the period between 01-01- 2018 and 31-12-2018. The data were collected and analyzed using Excel software; the descriptive data were represented by frequencies and percentages.

Results: The majority of the patients who received clopidogrel were in the ages between 50 to 69. The majority of the prescribing physicians were residents followed by specialists. Cardiology (50.00%) followed by Internal Medicine (23.71%) were the departments that prescribed the majority of Clopidogrel.

Conclusion: Clopidogrel was used frequently and mainly alone without combination. It is prescribed primarily by resident prescribers who are usually with less experience than specialists and consultants. It is important to prescribe it appropriately and it is the responsibility of pharmacists to check for the appropriateness of its dispensing and to check for drug-drug interactions before dispensing it.

Keywords: Trends; outpatient; prescribing; clopidogrel.

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1. INTRODUCTION

Cardiovascular diseases (CVDs) are the major cause of death worldwide and their mortality rate is more than any other cause. About 17.9 million people died from CVDs in 2016, representing 31% of all global deaths. Out of these deaths, 85% are due to heart attack and stroke [1].

For stroke survivors, antithrombotic therapy is recommended [2,3]. This therapy may include vitamin K antagonist therapy or antiplatelet therapy. Antiplatelet therapy can reduce the relative risk of ischemic stroke by approximately 15% [4].

Four major antiplatelet agents are used to treat ischemic stroke either alone or in combination which are ticlopidine, aspirin, dipyridamole and clopidogrel. If the patient has cardioembolic strokes he is treating with vitamin K antagonist therapy but if he has non-cardioembolic strokes he will be treated with antiplatelet therapy. [4]

Only few clinical trials about the treatment of ischemic stroke provide a direct comparison among antiplatelet alternatives. As a result, clinicians have doubt regarding the selection of antiplatelet therapy for secondary stroke prevention among patients with non-cardioembolic ischemic stroke [5–14].

Clopidogrel is an antiplatelet drug that is frequently prescribed in patients suffering from myocardial infarction, ischemic stroke, and peripheral arterial disease [15]. It is very effective and has overall tolerability profile similar to that of aspirin, although gastrointestinal hemorrhage occurred significantly less often in clopidogrel recipients [16]. However, it still has many adverse events specially if prescribed inappropriately. It is important to prescribe it correctly to increase the benefit and decrease the negative outcomes of its use. Therefore, this study aims to evaluate the trends of outpatient prescribing of clopidogrel in order to guide the physicians to appropriate prescribing practice in Alkharj.

2. METHODOLOGY

The present study was conducted in a public hospital in Alkharj city. The outpatient prescriptions were reviewed to evaluate the prescription patterns of clopidogrel in the period between 01-01- 2018 and 31-12-2018.

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

Nationality, gender, age, level of the physicians and departments that prescribed clopidogrel to the outpatients were collected and analyzed using Excel software; the descriptive data were represented by frequencies and percentages.

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

3. RESULTS

There were 194 clopidogrel tablets prescribed during 2018 in the outpatient setting. About 53 % of the patients were male. Personal data are presented in Table 1.

The majority of the patients who received clopidogrel were in the ages between 50 to 69 (55.15%). The age of the patients is shown in Table 2.

The majority of the physicians were residents (69.07%) followed by specialists (21.13%). Table 3 shows the level of the physicians.

Cardiology (50.00%) followed by Internal Medicine (23.71%) were the departments that prescribed the majority of clopidogrel. The departments that prescribed clopidogrel to the outpatients were shown in Table 4.

4. DISCUSSION

There were 194 clopidogrel tablets prescribed during 2018 in the outpatient setting. About 53.09% of the patients were male and 46.90% were female patients. The majority of the patients who received clopidogrel were in the ages between 50 to 69 (55.15%). This result is rational because the incidence of cardiovascular diseases, including stroke, is increased with advancing ages (the risk of stroke increases as the individual get older). The incidence of stroke increases with age, with the incidence doubling for each decade after 55 years of age as reported by Roger et al. [17]. In an analysis of the US Nationwide Inpatient Sample, among adults aged 14 to 44 years, ischemic stroke

Table 1. Personal data

Personal data	Category	Number	Percentage
Nationality	Saudi	118	60.82
	Non- Saudi	76	39.18
Gender	Male	103	53.09
	Female	91	46.90

Table 2. Age of the patients

Age	Number of clopidogrel prescribed	Percentage of clopidogrel prescribed
20-29	1	0.51
30-39	9	4.63
40-49	28	14.43
50-59	55	28.35
60-69	52	26.80
70-79	34	17.52
80-89	10	5.15
More than 89	5	2.57

admissions increased annually from 1995 to 2008 [18]. In hemorrhagic stroke patients, the incidence increases after 45 years of age [19].

Table 3. The level of the physicians

Physician level	Number	Percentage
Consultant	19	9.79
Resident	134	69.07
Specialist	41	21.13

Table 4. The departments that prescribed clopidogrel to the outpatients

Department	Number	Percentage
Cardiology	97	50.00
Chest	1	0.51
Emergency	28	14.43
Gastroenterology	1	0.51
Internal Medicine	46	23.71
Nephrology	16	8.24
Neurology	5	2.57

The majority of the physicians were residents (more than 69%) followed by specialists and only 9.79% of the prescriptions were written by consultant physicians. This may lead to medication errors or drug therapy problems due to insufficient experience of resident prescribers.

Clopidogrel is used frequently by Cardiology (50.00%) followed by Internal Medicine (23.71%) and the Emergency department (14.43%). This result is also rational because the majority of cardiovascular diseases patients were usually found in Cardiology and also there are Internal

Medicine prescribers specialized in the treatment of cardiovascular diseases. Moreover, cardiovascular medications are usually prescribed the emergency department as Preksha A. Barot reported [20].

Clopidogrel is used frequently but less than aspirin in the present study and more than ticagrelor. It has been proved that clopidogrel is safe in long-term trials and to be at least as effective as aspirin. In the present study, there were 194 clopidogrel prescriptions (24.07% of the total antiplatelet prescriptions). In 25.25% of the prescriptions of clopidogrel, the patients received both clopidogrel and aspirin, in 1 prescription, clopidogrel was combined with ticagrelor (0.51%) and in 74.23% of the patients received only clopidogrel and this is rational because tell now there is a confusion regarding which is better clopidogrel with aspirin or it is sufficient to give clopidogrel alone.

One previous study reported that adding aspirin to clopidogrel in high-risk patients with recent ischaemic stroke or transient ischaemic attack is associated with a non-significant difference in reducing major vascular events. Moreover, Jin Sup Park et al reported that using clopidogrel alone following coronary stenting was not associated with increased mortality and worse clinical outcomes at one-year compared to dual antiplatelet therapy in patients with acute myocardial infarction [21]. However, the risk of life-threatening or major bleeding is increased by the addition of aspirin [22-24]. So there is non-significant difference between the addition of

aspirin to clopidogrel or using clopidogrel alone, and in the combination the risk of bleeding will be increased.

5. CONCLUSION

The present study showed that clopidogrel was used frequently and mainly alone without combination with other antiplatelet agents, in some cases it is combined with aspirin. Generally, it is given correctly but because it is prescribed mainly by resident prescribers more supervision is required by specialists and consultants. Clopidogrel may be safer than other antiplatelet agents but still could cause many adverse effects and also it has several major and moderate interactions with a wide range of medications as reported in previous studies. Therefore, it is important to prescribe it appropriately and it is the responsibility of pharmacists to check for the appropriateness of its prescribing and to check for drug-drug interactions before dispensing it.

6. LIMITATION

There are some important data that were missed in the medical records such as the specific diagnosis of the patients in addition to the complications and side effects.

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.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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