Ranitidine Prescription Pattern of Outpatient in a Public Hospital in Al-Kharj

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Author’s contribution

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

ABSTRACT

Aim: The study of prescribing pattern is essential since it gives an idea to physicians about the process of monitoring and assessment of the drugs and endorses the required modifications. This study aimed to assess the outpatient prescribing pattern of ranitidine in a public hospital in Alkhajr.

Methodology: This is a retrospective study was conducted at the outpatient setting in a public hospital in Alkhajr. The outpatient electronic prescriptions were reviewed to evaluate the prescription patterns of ranitidine drug by the help of pharmacy department in the hospital.

Results: Throughout the study, 697 patients received ranitidine. About 51.65% of the patients were females. Most of the patients who were included in the study were in the age level between 20-49 (61.68%). Moreover, most of the prescriptions were prescribed by emergency department (70.30%).

Conclusion: Prescribing of ranitidine drug is indeed popular among outpatients in the study. This study investigated the frequency of ranitidine use but further studies are warranted to investigate the appropriateness of its prescriptions.

Keywords: Histamine-2 blockers; outpatient; prescription pattern; ranitidine.

1. INTRODUCTION

The main goal of drug therapy for patients is to improve their quality of life. Drugs play a vital role in drug therapy. The drug should be used appropriately by given the right drug with right regimen and for adequate periods as per clinical need [1]. World Health Organization (WHO)
stated that the inappropriate use of medication wastes resources and reduces the quality of patient's care [2]. Generally, essential medications are efficacious, affordable and safe. The access and rational usage of essential drug is important to improve the status of health [3].

The prescription is defined as a legal document involving directions for medication by a registered physician to the pharmacist [4]. The prescription writing directions are given by different sources such as British national formulary (BNF) and WHO [5,6]. The appropriate prescription has an incredible influence on drug therapy in addition to the influence on the patient's health. Nevertheless, previous studies showed that most of the general practitioner don't adhere to the guidelines that were prepared by the regulatory bodies [7,8].

Ranitidine is a drug belongs to histamine-2 blockers. It works by reducing the quantity of acid that is produced by stomach. It has been used to prevent and to treat stomach and intestines ulcers, to treat disorders in which the stomach produces excessive acid secretion, to treat gastroesophageal reflux disease and to manage other disorders that lead to heartburn [9]. Ranitidine and other histamine-2 receptor antagonists have been approved for nonprescription use [10]. The inappropriate use of ranitidine and other histamine-2 blockers is common. Suárez–Varela et al reported that prolonged treatment for acid suppression is common and that the widespread use of peptic ulcer medications is mostly due to excessive prescription of these medications for non-ulcer dyspepsia. He also stated that many patients consume these drugs on a long-term basis in the absence of a clear diagnosis [11].

The study of prescribing pattern is essential for the reason that it gives an idea to physicians about the monitoring and the assessment of the medications and endorses the needed modifications [12]. This study aimed to assess the outpatient prescribing pattern of ranitidine in a public hospital in Alkharij.

2. METHODOLOGY

This is a retrospective study was conducted at the outpatient setting in a public hospital in Alkharij. The outpatient electronic prescriptions were reviewed to evaluate the prescription patterns of ranitidine drug by the help of pharmacy department in the hospital.

The inclusion criteria include all outpatient prescriptions that contains ranitidine between 1 Jan till 30 June, 2018. So, the exclusion criteria include inpatient prescriptions, outpatient prescriptions that didn't contain ranitidine and the prescriptions before or after the study period.

The data were collected and analyzed using Excel software and represented in 4 tables. The first table includes personal data, Table 2 includes the age of the patients, Table 3 includes the departments that prescribed ranitidine throughout the study and Table 4 includes the level of physicians who prescribed ranitidine. The descriptive data were represented by frequencies and percentages.

3. RESULTS AND DISCUSSION

Throughout the study, 697 patients received ranitidine. About 51.65 % of the patients were females. The nationality and the gender of the patients who received ranitidine are shown in Table 1.

Most of the patients who were included in the study were in the age level between 20-49 (61.68%). The age of patients receiving Ranitidine is shown in Table 2.

Most of the prescriptions were prescribed by emergency department (70.30%) followed by internal medicine (8.32%) and cardiology (6.89%). The departments that prescribed ranitidine are shown in Table 3.

Table 1. Personal data of the patients who received ranitidine

| Variable | Category | Number | Percentage |
|----------|----------|--------|------------|
| Nationality | Saudi | 521 | 74.75% |
| | Non-Saudi | 176 | 25.25% |
| Gender | Female | 360 | 51.65% |
| | Male | 337 | 48.35% |
Table 2. Age of patients receiving Ranitidine

| Age          | Number | Percentage |
|--------------|--------|------------|
| Less than 10 | 5      | 0.72%      |
| 10-19        | 56     | 8.03%      |
| 20-29        | 180    | 25.82%     |
| 30-39        | 142    | 20.37%     |
| 40-49        | 108    | 15.49%     |
| 50-59        | 98     | 14.06%     |
| 60-69        | 55     | 7.89%      |
| More than 69 | 53     | 7.60%      |

Table 3. Departments that prescribed ranitidine

| Department                  | Number | Percentage |
|-----------------------------|--------|------------|
| Cardiology                  | 48     | 6.89%      |
| E.N.T                       | 2      | 0.28%      |
| Emergency                   | 490    | 70.30%     |
| Gastroenterology            | 8      | 1.15%      |
| Internal Medicine           | 58     | 8.32%      |
| Nephrology                  | 30     | 4.30%      |
| Neuro Surgery               | 12     | 1.72%      |
| Neurology                   | 2      | 0.28%      |
| Obstetrics & Gynecology     | 5      | 0.72%      |
| Orthopedic                  | 31     | 4.45%      |
| Pediatrics                  | 2      | 0.28%      |
| Rheumatology                | 7      | 1.00%      |
| Urology                     | 2      | 0.28%      |

Table 4. The level of physicians who prescribed ranitidine

| Level of physician | Number | Percentage |
|--------------------|--------|------------|
| Consultant         | 31     | 4.45%      |
| Resident           | 627    | 89.96%     |
| Specialist         | 39     | 5.59%      |

Most of the physicians who prescribed ranitidine were residents (89.96%) followed by specialists (5.59%). The level of physicians who prescribed ranitidine is shown in Table 4.

In the outpatient setting, only ranitidine was prescribed among histamine-2 blockers. Cimetidine, famotidine and nizatidine were not prescribed in the outpatient setting of the hospital. 

Several studies showed that ranitidine was prescribed frequently. Almeman et al reported that in a Primary Health Center in Pulau Penang, Malaysia, the most frequently prescribed antiulcer medication was ranitidine (83%) [13]. Braga et al stated that among inpatients in a teaching hospital, the five most commonly prescribed drugs were dipyrone, ranitidine, metoclopramide, dipyone in a fixed-dose combination and cefazolin. They also stated that there was a high prevalence of ranitidine prescription (42.9%), but it is noteworthy that only 10.7% had digestive diseases [14]. Additionally, Nidhi et al reported that in an orthopedic department, ranitidine was most frequently prescribed, followed by aspirin, diclofenac sodium and amlodipine [15].

Antony et al stated that ranitidine was the most commonly prescribed drug but the gastrointestinal diseases prevalence was very low in their study and that it was probably being prescribed for prophylaxis against non-steroidal anti-inflammatory drug-induced gastritis and was given mainly when it was not needed [16]. Moreover, another study has also reported ranitidine as one of the most commonly prescribed medicines despite low prevalence of gastrointestinal conditions and that that irrational use of ranitidine is common [17]. Bhanu et al stated that in post-operative patients of...
gynecology department of tertiary care teaching hospital, the most commonly prescribed antiulcer drug was ranitidine (75.0%) [18]. Furthermore, Shankar et al reported that among patients with cardiovascular disorders in the internal medicine ward, the prescribing frequency of ranitidine was high (13.18%) [19]. The main limitation in this study was that there was no diagnosis for the patients in the electronic outpatient prescriptions.

In April 2020, U.S. Food and Drug Administration announced that it is requested to withdraw all prescription and over-the-counter ranitidine drugs from the market immediately, because ranitidine contains N-Nitrosodimethylamine (NDMA) that is a probable human carcinogen. So other drugs could be used because to date, the FDA’s testing has not found NDMA in cimetidine, famotidine, lansoprazole, omeprazole or esomeprazole [20].

4. CONCLUSION

Prescribing of ranitidine drug is certainly popular among outpatients in the public hospital in this study. This study investigated the frequency of ranitidine use but this prescribing may really be inappropriate, unnesssary or irrational so more studies are warranted to examine the appropriateness of ranitidine prescriptions.

CONSENT

As per international standard or university standard, patients’ written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

This study was approved by the ethical committee of Ministry of Health with IRB Log No: 20-131E.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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