ORIGINAL ARTICLE

Prescribing Trends of Antihistamines in the Outpatient Setting in Al-Kharj

Nehad J. Ahmed[1]*, Menshawy A. Menshawy[2]

[1]Department of Clinical Pharmacy, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia, [2]Department of Medicinal chemistry, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia

Abstract

Aim: This study aims to illustrate the prescribing trends of antihistamines in the outpatient setting in Al-Kharj. **Materials and Methods:** This is a retrospective study that included the evaluation of antihistamines in the outpatient setting in a public hospital in Al-Kharj. The data were collected from the pharmacy-based computer system. **Results:** The total number of prescriptions that included antihistamines was 799. Most of the prescribed antihistamines were first-generation sedating antihistamines (chlorphenamine and diphenhydramine) (66.33%). About 63.20% of the prescribed antihistamines included chlorpheniramine followed by cetirizine (19.27%) and loratadine (14.39%). **Conclusion:** Antihistamines were prescribed commonly in the outpatient setting mainly first-generation sedating antihistamines. It is recommended to increase the awareness of health-care providers about the efficacy and the side effects of antihistamines and to encourage them to use these agents wisely.

Key words: Antihistamines, outpatient, prescribing, trends

INTRODUCTION

Antihistamines are used in the management of allergic conditions. They are useful for treating the itching that results from the release of histamine.[1] Antihistamines are generally considered safe for most people. This includes adults, children over the age of 2, and older people.[2] Like most medicines, antihistamines can cause side effects. The most common include drowsiness, dizziness, dry mouth, blurry vision, decreased appetite, feeling nervous, irritable, or excited.[2]

Antihistamines come in various pharmaceutical forms, including capsules, tablets, eye drops, liquids, and nasal sprays. Some are not over the counter and are only available by prescription. Others you can buy as an over the counteragents at pharmacies.[3] Prescription antihistamines include cyproheptadine, azelastine eye drops, desloratadine, azelastine nasal sprays, emedastine eye drops, carbinoxamine, levocabastine, eye drops, hydroxyzine, and levocetirizine oral. Over-the-counter antihistamines include cetirizine, brompheniramine, chlorpheniramine, fexofenadine, clemastine, loratadine, and diphenhydramine.[3]

In addition, antihistamines have been classified as sedating antihistamines (first-generation antihistamines) and non-sedating antihistamines (second-generation antihistamines).[4] Sedating antihistamines include chlorphenamine, clemastine, hydroxyzine, alimemazine, cyproheptadine, promethazine, and ketotifen.[4] Non-sedating antihistamines include cetirizine, desloratadine, acrivastine, loratadine, levocetirizine, and fexofenadine.[4]

The second-generation antihistamines are preferred over the older first-generation antihistamines as the initial choice of therapy because they cause less cholinergic side effects and less sedating.[5] Patterns of drug use are one of the key indicators used to assess the drug situation in countries. It helps with understanding patterns of use, risk perceptions, social and health correlates, as well as the consequences of the use of illicit drugs.[6] It is important to know antihistamines

Address for correspondence:
Nehad J. Ahmed, Department of Clinical Pharmacy, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia.
E-mail: n.ahmed@psau.edu.sa

Received: 28-10-2020
Revised: 11-01-2021
Accepted: 23-01-2021

prescribing trends in order to improve the rational use of antihistamine drugs.[1] Therefore, this study aims to illustrate the prescribing trends of antihistamines in the outpatient setting in Al-Kharj.

MATERIALS AND METHODS

This is a retrospective study that included the evaluation of antihistamines' prescriptions between July 1, 2018, and December 31, 2018, at the outpatient setting in a public hospital in Al-Kharj. Al-Kharj is a city in Al-Kharj Governorate in Central Saudi Arabia. It is located in the south of Riyadh.

The inclusion criteria include the prescriptions in 2018 that included antihistamines and the exclusion criteria include the prescriptions before or after 2018 and the prescriptions that did not include antihistamines.

The data were collected from the pharmacy-based computer system. These data included personal information, prescribers level, the number of different antihistamines prescribed, the prescribing departments, and the dosage forms of the prescribed antihistamines.

The data were collected and analyzed using Excel software and after that the data were represented as percentages and frequencies. This study was approved by the Institutional Review Board Log No. 20-131E.

RESULTS

The total number of prescriptions that included antihistamines was 799. All of these prescriptions contain over-the-counter antihistamines (brompheniramine, cetirizine, chlorpheniramine, clemastine, diphenhydramine, fexofenadine, and loratadine). The percentage of prescription antihistamines (azelastine eye drops, azelastine nasal sprays, carbinoxamine, cyproheptadine, desloratadine, emedastine eye drops, hydroxyzine, levocabastine eye drops, and levocetirizine oral) is 0%.

Most of the prescribed antihistamines were first-generation sedating antihistamines (chlorphenamine and diphenhydramine). Out of 799 prescriptions, 530 contained first-generation (66.33%) and 269 second-generation non-sedating antihistamines (33.67%).

About 63.20% of the prescribed antihistamines included chlorpheniramine followed by cetirizine (19.27%) and loratadine (14.39%). The number of antihistamines that were prescribed is shown in Table 1.

Table 2 shows the patients' gender. About 54.26% of the prescribed chlorpheniramine, 55.19% of cetirizine, 59.13% of loratadine, and 68.00% of diphenhydramine were prescribed for male patients.

Table 1: Number of antihistamines that were prescribed

Antihistamine	Number	Percentage
Chlorpheniramine (HISTOP®)	505	63.20
Cetirizine (CETIRIZINE®)	154	19.27
Loratadine (LORATADINE®)	115	14.39
Diphenhydramine (EXYLINE®)	25	3.13

Table 3 shows the age of the patients. About 85.35% of patients receiving chlorpheniramine, 68.18% of patients receiving cetirizine, 77.39% of patients receiving loratadine, and 72% of patients receiving diphenhydramine which were <40 years old.

Table 4 shows the prescribers' level. Most of the physicians who prescribed antihistamines were residents (98.00%). About 98.61% of chlorpheniramine, 96.10% of cetirizine, 97.39% of loratadine, and 100% of diphenhydramine were prescribed by residents.

Table 5 shows the departments that prescribe antihistamines. Most of antihistamines were prescribed by emergency department (83.48%). About 92.47% of chlorpheniramine, 61.04% of cetirizine, 72.17% of loratadine, and 92% of diphenhydramine were prescribed by emergency department.

Most of the prescribed antihistamines were in the tablet form (60% of chlorpheniramine, 86.36% of cetirizine, and 98.26% of loratadine). Only diphenhydramine was prescribed in 25 prescriptions as a bottle only. Table 6 shows the dosage forms of the prescribed antihistamines.

DISCUSSION

The most commonly prescribed antihistamine in the present study was chlorpheniramine (54.26%), in contrast to that, Bender *et al*. stated that diphenhydramine is the most commonly used first-generation antihistamine.[7] Moreover, most of the prescribed antihistamines were first-generation sedating antihistamines. In contrast to that, Zeerak *et al*. almost reported that most of the physicians (73%) in their study prescribed second-generation antihistamines that are considered more effective and with less side effects than first-generation antihistamines.[8] In addition, Demoly *et al*. stated that the second-generation ones are recommended over the first-generation drugs due to their lesser side effect.[9]

Although several first-generation such as chlorpheniramine and diphenhydramine are considered over-the-counter antihistamines,[3] the unfavorable adverse effect of these medicationshaspromptedtheGlobalAllergyandAsthmaEuropean Network to recommend making these agents as a prescription only, rather than over-the-counter drugs.[10] Furthermore, several studies stated that second-generation antihistamines are recommended over the first-generation antihistamines because

Table 2: Gender of patients receiving antihistamines

Gender	Chlorpheniramine (%)	Cetirizine (%)	Loratadine (%)	Diphenhydramine (%)
Male	274 (54.26)	85 (55.19)	68 (59.13)	17 (68.00)
Female	231 (45.74)	69 (44.81)	47 (40.87)	8 (32.00)
Total	505	154	115	25

Table 3: Age of patients receiving antihistamines

Age	Chlorpheniramine (%)	Cetirizine (%)	Loratadine (%)	Diphenhydramine (%)
Less than 10	146 (28.91)	17 (11.04)	2 (1.74)	4 (16.00)
10–19	91 (18.02)	17 (11.04)	14 (12.17)	3 (12.00)
20–29	112 (22.18)	37 (24.02)	33 (28.70)	7 (28.00)
30–39	82 (16.24)	34 (22.08)	40 (34.78)	4 (16.00)
40–49	42 (8.32)	21 (13.64)	10 (8.69)	2 (8.00)
50–59	18 (3.56)	12 (7.79)	8 (6.96)	3 (12.00)
60–69	8 (1.58)	13 (8.44)	2 (1.74)	0 (0.00)
More than 69	6 (1.19)	3 (1.95)	6 (5.22)	2 (8.00)
Total	505	154	115	25

Table 4: Prescribers' level

Physician level	Chlorpheniramine (%)	Cetirizine (%)	Loratadine (%)	Diphenhydramine (%)
Consultant	1 (0.20)	4 (2.60)	1 (0.87)	0 (0.00)
Specialist	6 (1.19)	2 (1.30)	2 (1.74)	0 (0.00)
Resident	498 (98.61)	148 (96.10)	112 (97.39)	25 (100.00)
Total	505	154	115	25

Table 5: The department that prescribed antihistamines

Prescribing department	Chlorpheniramine (%)	Cetirizine (%)	Loratadine (%)	Diphenhydramine (%)
Emergency	467 (92.47)	94 (61.04)	83 (72.17)	23 (92.00)
E.N.T	17 (3.37)	10 (6.49)	27 (23.48)	0 (0.00)
Internal medicine	2 (0.39)	3 (1.95)	2 (1.74)	0 (0.00)
Nephrology	7 (1.38)	7 (4.54)	1 (0.87)	2 (8.00)
Pediatrics	1 (0.20)	3 (1.95)	1 (0.87)	0 (0.00)
Dermatology	6 (1.19)	28 (18.18)	1 (0.87)	0 (0.00)
Chest	0 (0.00)	7 (4.54)	0 (0.00)	0 (0.00)
Cardiology	1 (0.20)	0 (0.00)	0 (0.00)	0 (0.00)
Obstetrics and gynecology	1 (0.20)	1 (0.65)	0 (0.00)	0 (0.00)
Pediatric surgery	1 (0.20)	0 (0.00)	0 (0.00)	0 (0.00)
Plastic surgery	1 (0.20)	0 (0.00)	0 (0.00)	0 (0.00)
Urology	1 (0.20)	0 (0.00)	0 (0.00)	0 (0.00)
Ophthalmology	0 (0.00)	1 (0.65)	0 (0.00)	0 (0.00)

Table 6: Dosage forms of the prescribed antihistamines

Dosage forms	Chlorpheniramine (%)	Cetirizine (%)	Loratadine (%)	Diphenhydramine (%)
Bottle	202 (40.00)	21 (13.64)	2 (1.74)	25 (100.00)
Tablet	303 (60.00)	133 (86.36)	113 (98.26)	0 (0.00)

of their pharmacokinetics, favorable efficacy/safety ratio, and lack of sedative and anticholinergic side effects.[11,12]

In contrast to our study results, Chadni *et al*. reported that the most used OTC antihistamine by the common residents was cetirizine (29.46%) followed by desloratadine (14.73%) and chlorpheniramine (14.52%).[13] In addition, Kolasani *et al*.[14] stated that second-generation antihistamines were more commonly prescribed compared to first-generation drugs and that the most commonly prescribed antihistamine was cetirizine (59.62%).

Most of antihistamines were prescribed by emergency department; this result is rational because several patients come daily to the emergency department with allergic reactions. Using antihistamine agents in the emergency department were associated with a lower likelihood of progression to anaphylaxis as reported by Kawano *et al*.[15] Lui reported that among the 162 cases of pediatric patients aged 6 or below who presented to the emergency department, 141 patients were prescribed one antihistamine of any group (87%).[16]

The main limitation in the study was that the records didn't include any information about the diagnosis. The second limitation was that injectable antihistamines were not included in the study because the study was conducted in the outpatient setting.

CONCLUSION

Antihistamines were prescribed commonly in the outpatient setting mainly first-generation sedating antihistamines. It is recommended to increase the awareness of health-care providers about the efficacy and the side effects of antihistamines and to encourage them to use these agents wisely and to encourage them to prescribe second-generation antihistamines instead of first-generation antihistamines because they are more effective and with less side effects.

ACKNOWLEDGMENT

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

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Source of Support: Nil. **Conflicts of Interest:** None declared.