



Pattern of Ciprofloxacin Prescribing at Outpatient Setting in Al-Kharj

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Author's contribution

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

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ABSTRACT

Aim: The study was conducted to demonstrate the pattern of ciprofloxacin prescribing at outpatient Setting in Al-kharj.

Methodology: A retrospective study was conducted to demonstrate the pattern of ciprofloxacin prescribing. The Information was collected from electronic prescriptions in a public hospital in Al-Kharj city. The data was processed using Microsoft Excel and the descriptive data was represented as frequencies and percentages.

Results: There were 611 ciprofloxacin prescriptions in 2018. Ciprofloxacin is the 5th most commonly prescribing antibiotics in the outpatient setting in 2018. The majority of the patients were in the age level between 20-39 (53.51%). Out of 773 prescriptions, 162 were excluded (eye or ear drops). There were 608 tablets (99.51%).

Conclusion: Ciprofloxacin is one of the common prescribed antibiotics in the outpatient settings. If it is prescribed inappropriately it will lead to increase bacterial resistance rate, increase adverse effects and increase the cost of the treatment. It should be prescribed appropriately and the patients should be monitored frequently during its use.

Keywords: Antibiotics; ciprofloxacin; quinolones; outpatient; prescribing.

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1. INTRODUCTION

About 80-90% of the antibiotic use occurs in the outpatient setting [1,2]. According to Suda et al. [3] more than 60% of antibiotic expenditures are associated with the outpatient setting. Aznar et al. [4] reported that more than 25% of prescriptions are for conditions for which antibiotics are infrequently indicated such as viral infections like acute rhinosinusitis, common cold and acute bronchitis. Approximately 50% of all outpatient antibiotic use is inappropriate that includes the unnecessary use of antibiotics and also includes the inappropriate selection, dosage regimen or duration [5-7].

The inappropriate usage of antibiotics leads to increase the cost, adverse effects and increase the development of antibiotic resistance, which is now one of the main threats to public health globally [8]. Therefore, it is important to optimize antibiotic use in outpatient settings in order to protect patients from harm and combat antibiotic resistance [9].

Ciprofloxacin is a fluoroquinolone antibiotic which works by killing bacteria that cause infections. It is used to treat several infections. It is commonly prescribed but is often used unsuitably leading to wastage of scarce healthcare resources and increase the risk of developing bacterial resistance [10]. It is important to know the prescribing pattern of ciprofloxacin in order to improve the prescription quality and to decrease the inappropriate prescribing of it. Therefore, this study was conducted to demonstrate the pattern

of ciprofloxacin prescribing at outpatient setting in Al-kharj.

2. METHODOLOGY

A retrospective study was conducted to demonstrate the pattern of ciprofloxacin prescribing. The information was collected from electronic prescriptions in a public hospital in Alkharj city. The information was collected after the approval of the study by IRB ethical committee. The confidentiality of the information was maintained. The prescriptions that contain ciprofloxacin in 2018 were included. The exclusion criteria include prescriptions before or after 2018, the prescriptions that didn't contain ciprofloxacin and the inpatient prescriptions. Moreover, eyes and ears ciprofloxacin drops were excluded. The data included personal information, dosage forms of ciprofloxacin, prescribers level and the prescribing departments. The data was processed using Microsoft Excel and the descriptive data was represented as frequencies and percentages.

3. RESULTS

There were 611 ciprofloxacin prescriptions in 2018. Ciprofloxacin is the 5th most commonly prescribing antibiotics in the outpatient setting in 2018. More than 67% of the patients were males. Personal data is shown in Table 1.

The majority of the patients were in the age level between 20-39 (53.51%). patients' age is shown in Table 2.

Table 1. Personal data

Variable	Category	Number	Percentage (%)
Gender	Male	412	67.43
	Female	199	32.57
Nationality	Saudi	401	65.63
	Non Saudi	210	34.37

Table 2. Patients' age

Age	Number	Percentage (%)
10-19	42	6.87
20-29	176	28.80
30-39	151	24.71
40-49	114	18.66
50-59	54	8.84
60 -69	39	6.38
70-79	25	4.09
80 or more than 80	10	1.64

Table 3. Dosage forms of the prescribed ciprofloxacin

Dosage form	Number	Percentage (%)
Tablet	608	99.51
Vial	3	0.49

Table 4. The level of the prescribers

Prescribers level	Number	Percentage (%)
Consultant	52	8.51
Resident	525	85.92
Specialist	34	5.56

Table 5. The prescribing departments

Departments	Number	Percentage (%)
Cardiac surgery	2	0.33
Chest	2	0.33
E.N.T	5	0.82
Emergency	448	73.32
General surgery	75	12.27
Internal medicine	5	0.82
Nephrology	4	0.65
Gastroenterology	1	0.16
Obstetrics & Gynecology	15	2.45
Orthopedic	1	0.16
Plastic surgery	1	0.16
Pediatrics	1	0.16
Urology	51	8.35

Out of 773 prescriptions, 162 were excluded (eye or ear drops). There were 608 tablets (99.51%). The dosage forms of the prescribed ciprofloxacin are shown in Table 3.

The majority of the prescribers were residents (85.92%). The level of the prescribers is shown in Table 4.

About 73% of the prescriptions were prescribed by emergency departments. Table 5 shows the prescribing departments.

4. DISCUSSION

Ciprofloxacin is the 5th most commonly prescribing antibiotics in the outpatient setting in 2018 [11]. More than 67% of the patients were males. Ata and Biswas [12] reported that ciprofloxacin was the fourth most commonly prescribed antibiotics. Ahmed et al. [13] reported that quinolones group was prescribed in 9.1% of the outpatient antibiotics prescriptions. In contrast to our study, Shanmugapriya et al. [14] stated that the highest prescribed antibiotic was levofloxacin followed by co-trimoxazole. Shapiro

et al. [15] reported that the majority of antibiotics prescribed for adults in ambulatory care settings are broad-spectrum agents, most commonly fluoroquinolones and macrolides.

The majority of the patients were in the age level between 20-49. This is rational because quinolones are not indicated in young patient. Choi et al. [16] reported that fluoroquinolone use in children is limited because juvenile animals developed arthropathy in previous experiments on fluoroquinolone use. Moreover, there is a warning for the use of fluoroquinolones in elderly. Food and Drug Administration (FDA) said the risk of tendinitis and tendon rupture was higher in people aged over 60, patients who had received kidney, heart, or lung transplants, and people taking steroid treatment. Additionally, the FDA told doctors to consider the benefits and risks for each patient before prescribing a fluoroquinolone and to use them only for treating or preventing infections caused by bacteria [17].

The majority of ciprofloxacin were prescribed as a tablet dosage form; this is rational because the majority of the patient was adult and also in the

outpatient, the use of vials and ampules dosage forms is low. The majority of the prescribers were residents followed by consultants and specialists.

The majority of the prescriptions were prescribed by emergency departments followed by general surgery and urology departments. Similarly, Lautenbach et al. [18] reported that fluoroquinolone accounted for approximately 25% of all antibiotics prescribed in patients seen in the emergency departments who were subsequently discharged. Moreover, Oqal et al. [19] reported that co-amoxiclav made up more than 20% of the prescriptions from the outpatient departments followed by ciprofloxacin and cefuroxime. Moreover, they stated that the percentage of antibiotic prescriptions in the emergency department far exceeded the overall rate.

5. CONCLUSION

Ciprofloxacin is one of the common prescribed antibiotics in the outpatient settings. If it is prescribed inappropriately it will lead to increase bacterial resistance rate, increase adverse effects and increase the cost of the treatment. It causes several common and severe adverse effects it also interacts with several medications. As a result, it should be prescribed appropriately and the patients should be monitored frequently during its use. It is important to increase the awareness of its use and to implement antimicrobial stewardship programs.

CONSENT

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

ETHICAL APPROVAL

The information was collected after the approval of the study by IRB ethical committee.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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