

Prevalence of antibiotic use among medical students in Iraq

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Abstract

Background: Self-medication with antibiotics is one of health problems that lead to drug resistance. The impact of antimicrobial resistance includes prolonged illness, prolonged stay in hospital, expensive medications may be required. Antibiotics misuse prevalence was registered worldwide. In Iraq, previous review study demonstrated high prevalence of antibiotic misuse among Iraqi population in different regions ranging from (45%- 92%).

Objective: Aim of this study is to assess the prevalence of antibiotics use among medical students in private university in Bagdad.

Method: Descriptive cross- sectional study was carried out on (271) students of medical colleges in Al-Bayan University during April 2020. Students were asked to participate in this study by using electrical questionnaire (google forms) and they informed about the aim of the study.

Results: A total of (271)of medical students participated in the study,(51.1%) of them were female and (49.8%) were male and the majority in 19-24 years age group. The prevalence of self- medication with antibiotics during one year prior to the study was (83.7%). Common cold (31.3%) and sore throat(27.9%) were the most conditions for which antibiotics used and penicillin was the most popular antibiotic for self- medication . The reason for using antibiotics without prescription was their previous experience with antibiotics (49.8%). The majority of them(34.3%) used antibiotics for 1-3 days only or until the symptoms disappear(33%). Their source of information was from physician (34.8%) and pharmacist (30.5%).

Conclusion: This study revealed a higher rate of antibiotics self-medication among medical students which considered as a health problem. This needs educational intervention about rational use of antibiotics for the university students and for the general public.

Keywords: Antibiotics use, medical students, Iraq

Introduction

World health organization (WHO) defines self-medication as the selection and use of medicines by individual to treat self-recognized illness or symptoms (1). Misuse of antibiotic means incomplete regimen, use the leftover antibiotics again, or self-medication with antibiotics (2). Self-medication with antibiotics is one of major health problems that lead to drug resistance (3). The impact of antimicrobial resistance includes prolonged illness and hospital stays and expensive medications required for treatment(4). Previous studies showed several factors leading to misuse/ overuse of antibiotics practice among populations, such as educational level of the patient and health care professional, social condition, law, the availability of the drugs and advertisement exposure (5). In addition, pharmacists may sell antibiotics for different reasons without prescription, factors related to patient or for economical purposes, in addition to lack of regulations by health authorities(6). Some patients can get their antibiotics online depending on their diagnosis (7).

Antibiotics misuse prevalence was registered worldwide. Studies conducted among the general population in Europe, reported that 10-45% of population used unprescribed antibiotics in countries like Britain, Greece, Italy, and Macedonia(2). High rates of self-medication with antibiotics were also reported among university students in Saudi Arabia, UAE, and Egypt(8).

In Iraq, previous review study demonstrated high prevalence of antibiotic misuse among Iraqi population in different regions ranging from (45%- 92%) (9). Information about self-medication with antibiotics among medical students in Iraq are scarce.

Aim of study

The current study aimed to determine the prevalence of self-medication with antibiotics among medical students in private university in Baghdad.

Method

Descriptive cross-sectional study was carried out on (271) students of pharmacy and nursing colleges in Al-Bayan University during April 2020. Students were asked to participate in this study by using online questionnaire (google forms) which was prepared by the author based on published researches (10,11).

The questionnaire contains section covering demographic data, questions regarding use of antibiotics with or without prescription, the purpose of taking the antibiotic, source of obtaining it, duration and reasons for using antibiotics and the category of antibiotic used. Collected data were analyzed by using frequency and percentage.

Results

A total of 271 students participated in this study completed the form, (51.1%) of them were female, the other part (48.9%) were male (figure 1). The majority of them in the age group of 19-24 years, the average age was 22.7 years.

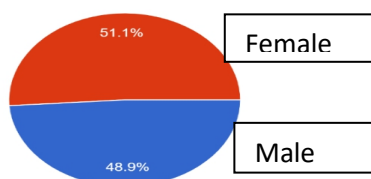


Figure 1. Gender distribution of participants

The pie chart in figure 2, describes the percentage of self-medication with antibiotics within the last year among our students (83.7%), and the percentage of students who did not was(16.3%).

Figure 2. Recent use of antibiotics

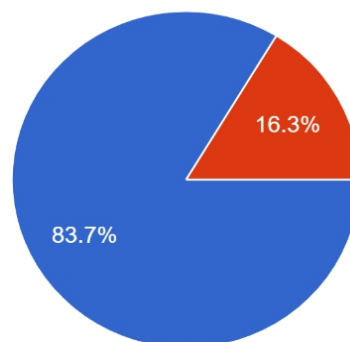


Table 1 summarize the health problems reported by students who practiced self-medication. It was found that common cold and sore throat were the predominant health problems reported by students. 21% of them reported that they used antibiotics for other conditions not listed in the questionnaire.

Table1. The cases for which self-medication with antibiotics were used

Disease	N (%)
Common cold	73(31.3)
Sore throat	65(27.9)
Toothache	20(8.6)
Diarrhea	7(3.2)
Others	68(29)

As shown in table 2, major reason for self-medication among students(n=233) was having previous experience with health problem that encourages them to reuse it again 116(49.8%), others 43(18.5%) mentioned that the quick relief was required in some urgent symptoms, other reasons include difficulty in reaching a physician 20(8.6%) and money saving 17(7.3%). While 37(15.9%) of our participants reported that they self-medicated for other reasons not mentioned in the questionnaire.

Table 2. Reasons for self-medication with antibiotics

Factor	N (%)
Previous experience with the antibiotic	116(49.8)
Difficulty reaching a physician	20(8.6)
Money saving	17(7.3)
Quick relief is desired	43(18.5)
Others	37(15.9)

Regarding the source of information about antibiotics use, the findings of the present study revealed that the students depend mainly on the physician and (34.8%), pharmacists(30.5%). Internet browsing was also used to acquire instructions about antibiotics (13.3%). On the other hand, (12.4%) of respondents used the medication leaflet inside antibiotic pack as a source, and (6.4%) of them depend on information from their relative and friends(Table 3).

Table 3. Source of information about using the antibiotic

Source	N(%)
Physician	81(34.8)
Pharmacist	71(30.5)
Friends and relatives	15(6.4)
Leaflet inside antibiotic pack	29(12.4)
Internet	31(13.3)
From my study	6(2.5)

The majority of our participants 80(34.3%) reported that they used the antibiotics only for 1-3 days, and 77(33%) reported that they leave the antibiotics when they symptoms disappear and feel well. However, 50(21.5%) of them recorded that they complete all the course (Table

4).

Table 4. Period of taking antibiotics

Period of using antibiotics	N(%)
1-3 days	80(34.3)
7-14 days	26(11.2)
Until symptoms disappear	77(33)
Until antibiotics ended	50(21.5)

Figure 3 displays the specific antibiotics that were most frequently used by our participants, penicillin were ranked highest followed by erythromycin ,cephalosporine, and sulfonamides. However, large proportion of them (40.8%) did not know the antibiotic they used.

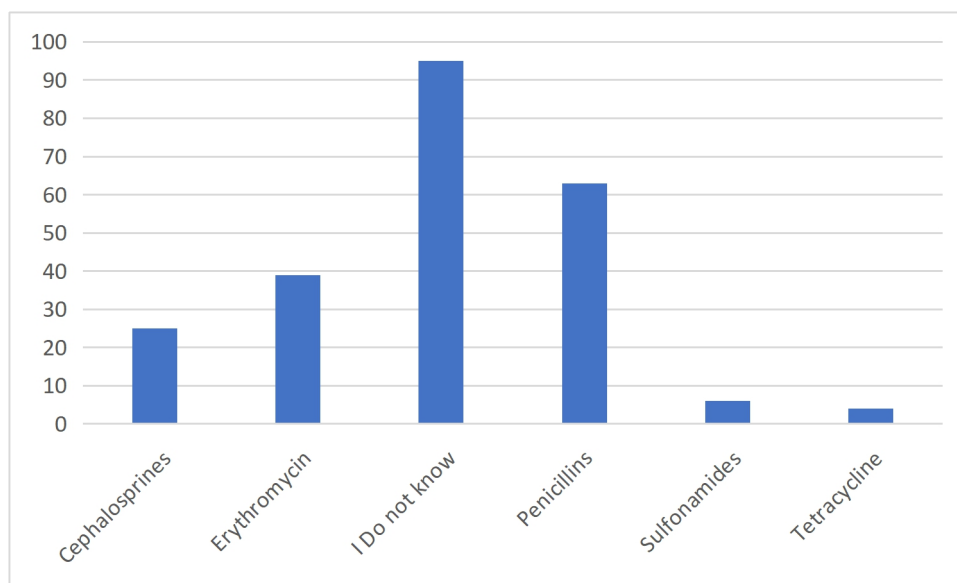


Figure 3. Specific antibiotics used by participants

Discussion

Irrationality of antibiotics use for self- medication has been reported in various developing and developed countries (12), the misuse of antibiotics is a risk to both the individual and the community because of emergence of bacterial resistance (13).

During the past year 83.7% of our participants were self-medicated with antibiotics. This finding is agreed with study conducted among medical students in India (84.6%) (14), but it is more than results reported among medical students in Libya (77%), Jordan (60%) and Malaysia (39.9%) (15,16,17).

We found that common cold and sore throat are the more prevalence causes to use antibiotics , these findings are consistent with results reported among medical students in Jazan, India, and Jordan.(5,14,16).The above conditions are mostly viral , requiring no antibiotic treatment(11) and according to disease control center(CDC) guidelines, 80% of the antibiotics which given with acute respiratory tract cases were unnecessary(18).Therefore, to prevent the risk of using antibiotics, the patient should consult the physician for proper use depending on the correct diagnosis(10).

The participants in this study were self- medicated because they depend on their previous positive experience (49.8%), this finding is similar to results reported among medical students in India (46.6%) (14) and more than results found among university students in Jordan (20.3%) (2) and in Karachi (27%) (19). This can be explained by the fact that medical students may have

knowledge that help them to practice self-medication with antibiotics and they think that they able to effectively diagnose and treat themselves. In addition, difficulty to reach physician, and time and cost saving were other reasons that led the students to be self-medicated.

The main antibiotics used for self -medication were penicillin which was taken by 40.8% of our students. This response is in agreement with similar previous studies in which amoxicillin particularly taken without prescription and it was dispensed even for common cold (14,20,21). This is may be due to its low cost and its availability in the community pharmacies. Using a specific antibiotic without prescription increased the probability to resistance of microorganism to that antibiotic (22).

In our study only 21.5% followed the course of antibiotic treatment, 34.3% of the students taking antibiotics three days or less. This was comparable to findings reported among students in Jordan in which 60% of them did not complete the course of antibiotics (23). Bacterial resistance develops as a result of using antibiotics for short time because of less therapeutic level required to kill the microorganisms (24) Medical students should have awareness of the health risks associated with non-compliance to the period of medication use such as bacterial resistance in case of antibiotics.

Participants in this study reported that their source of information on antibiotic use obtained primarily from physicians and pharmacists. This was also reported by in previous studies in which the students had physician or

pharmacy consultation before purchasing antibiotic (2,5). Other sources of information included internet & enclosed leaflet. These sources were found to be common in other studies as well (10,11).

Conclusion

This study recorded a higher rate of antibiotics self-medication among medical students which considered as a health problem. This needs educational intervention about rational use of antibiotics for the university students and for the general public. Therefore, there is urgent need to enforce laws that control the use of antibiotics and increase the awareness of medical students toward the proper use of prescribed and unprescribed antibiotics and their effect on the public health.

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