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Survey on knowledge towards antibiotics among medical university students in Libya

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Abstract: A survey was conducted to determine the prevalence of antibiotics self-medication among university medical students in Tripoli city. Methods: pre-validated questionnaire was distributed to 300 students at Tripoli University [Faculty of Pharmacy and Faculty of Medicine], and students were asked to report antibiotic use with or without prescription in the year 2016. The questions covered demographic information as well as frequency of antibiotic use, completion of course, condition for which it was used and type of antibiotic used. A total of 252 forms were completed and returned (response rate 84%). Results: The majority of students (238, 94.4%) were females and the average age was 22.7 years (range 18-25). Prevalence of antibiotic use with and without a prescription was high (100 %). The pharmacy was the main source where the majority obtained antibiotics (82.5%). The course of antibiotic was completed by larger number of respondents with prescription (72%). Flu, upper respiratory tract infection, gastrointestinal disorders, skin conditions and urinary tract infection were the conditions for which antibiotics were used. The most common antibiotics used were co-amoxiclav, amoxicillin, and cefixime. Basis for using antibiotics without a prescription include previous experience (28.3%), doctor advice on last visit (35.6%), pharmacist advice (23.7%), and advice of a friend/relative (12.4 %). Conclusion: The results clearly show high prevalence of antibiotic use with and without prescriptions. Educational programs should be established to increase awareness of students, the prescribing physicians and the pharmacists of responsible self-medication in general and rational antibiotic use.

Key words: Antibiotics – self-medication – misuse – student.

Introduction:

Self-medication with antibiotics is the meaning of self-administering antibiotics with the aim of treating a perceived infection[1]. It is a common practice among university students worldwide[2]. Responsible self-medication is encouraged by World Health Organization as it helps in the preventing and treating a minor

illness[3]. However, irrationality of antibiotics use for self-medication has been reported in various developing and developed countries[4]. Many reports outlined the high prevalence of self-medication with antibiotics among medical and non-medical students[2]. The misuse of antibiotics is of risk to both the individual and the community as it is the reason for the development of bacterial resistance[5]. Among many aspects that contribute to misuse of antibiotics is lack of access to healthcare, liberal dispensing by pharmacists of antibiotics without a prescription, lack of regulatory control and prolonged delays to medical care in hospitals[6]. Antibiotics self-medication has become a considerable public health problem due to a steady raises in financial, political, and cultural reasons [7]. In Libya, information about self-medication with antibiotics among undergraduate medical students are scarce. Therefore, the current study is conducted to explore the prevalence and student perception and attitude of self-medication with antibiotics among undergraduate medical students of Tripoli University, Libya.

Subjects and Methods:

A prospective cross-sectional study design based on a validated anonymous self-administered questionnaire was conducted during March to Jun 2017. The study was approved by the research committee of the University of Tripoli Alahlia, Janzur, Libya. The questionnaire was written in English and was pre-validated on a sample of 5 students and comments were taken into consideration. A total of 300 questionnaires were randomly distributed to students of faculty of pharmacy and faculty of Medicine, Tripoli University, Libya. The questionnaire containing both open- and close-ended (multiple-choice) questions, and was explained to all students involved in the study. A high level of confidentiality was maintained throughout the study. Students were asked to report antibiotic use with or without prescription in the year 2016. The questionnaire contained questions covering demographic data, questions regarding antibiotic use with or without a prescription, frequency and duration of use, situation for which antibiotic was used, category of antibiotic and basis for using it, source of antibiotic and knowledge of misuse and bacterial resistance. The data entry and analyses were done in SPSS version 22 (SPSS, Inc., Chicago, IL, USA). The data were summarized as percentages and frequencies.

Results:

Of **300 students** participated in this study, a total of 252 forms were completed and returned (response rate 84%). The results showed poor knowledge of the antibiotic use among medical students. The majority of students (238, 94.4%) were females and the average age was 22.7 years (range 18-25). In table 1, the prevalence of antibiotic use with and without a prescription was high. Antibiotics were obtained with a medical prescription by 58 (23%) and used for self-medication without prescription by 194 (77%) of students. The course of antibiotic was completed by larger number of respondents with or without prescription [(39, 67.2%), (112, 57.7%) respectively].

Types of antibiotics and basis for their use are shown in Table 2. The most common antibiotics used with or without a prescription were co-amoxiclav, amoxicillin, and cephalosporin. The most commonly prescribed antibiotics were co-amoxiclav (32, 55.2%), amoxicillin (8, 13.8%), and cephalosporin (11, 19%). For self-medication participants, the order was the same, the commonly used antibiotics were co-amoxiclav (120, 61.8%), amoxicillin (51, 26.3%) and cephalosporin (13, 6.7%). The pharmacy was the main source where the majority obtained antibiotics (84.5% with prescription, 91.7% without medical consultation). Surprisingly, large numbers of both groups of students were aware of bacterial resistance associated with misuse of antibiotics. Antibiotics were used with or without a prescription for mainly flu, upper respiratory tract infection, gastrointestinal disorders, skin conditions and urinary tract infection (Figure 1). Basis for using antibiotics without a prescription include previous experience (28.3%), doctor advice on last visit (35.6%), pharmacist advice (23.7%), and advice of a friend/relative (12.4 %).

Table 1. Frequency and duration of use, and completion of course of antibiotics.

	Number of respondents (%)	
	With a prescription (n=58)	without a prescription (n=194)
Used Antibiotics	58 (23%)	194 (77%)
How many times:		
Once	21(36.2%)	66 (34%)
Twice	13 (22.4%)	48 (24.7%)
Three time	17 (29.3%)	43 (22.3)
More than three time	7 (12.1%)	37 (19)
Completed the course:		
Yes	39 (67.2%)	112 (57.7%)
No	19 (32.8%)	82 (42.3%)
Duration of use:		
Three days	12 (20.6%)	98 (50.5%)
Five days	28 (48.4%)	67 (34.5%)
Seven days	11 (18.9%)	18 (9.3%)
More than seven days	7 (12.1%)	11 (5.7%)

Table 2. Type and basis of antibiotic used, their source, and awareness of respondents of the risk of bacterial resistance.

	Number of respondents (%)	
	With a prescription (n=58)	without a prescription (n=194)
Type of Antibiotic:		
Co-amoxiclav	32 (55.2%)	120 (61.8%)
Amoxicillin	8 (13.8%)	51 (26.3%)
Cephalosporins	11 (19%)	13 (6.7%)
Tetracycline	4 (6.9%)	3 (1.6%)
Metronidazole	2 (3.4%)	7 (3.6%)
Macrolides	1 (1.7%)	-
Basis for use:		
Doctor's advice on last visit		69 (35.6%)
Previous experience		55 (28.3%)
Pharmacist advice		46 (23.7%)
Advice of a friend/relative		24 (12.4%)
Source:		
Pharmacy	49 (84.5%)	178 (91.7%)
Home drug cabinet	9 (15.5%)	16 (8.3%)
Awareness of bacterial resistance:		
Yes	52 (89.7%)	156 (80.4%)
No	6 (10.3%)	38 (19.6%)

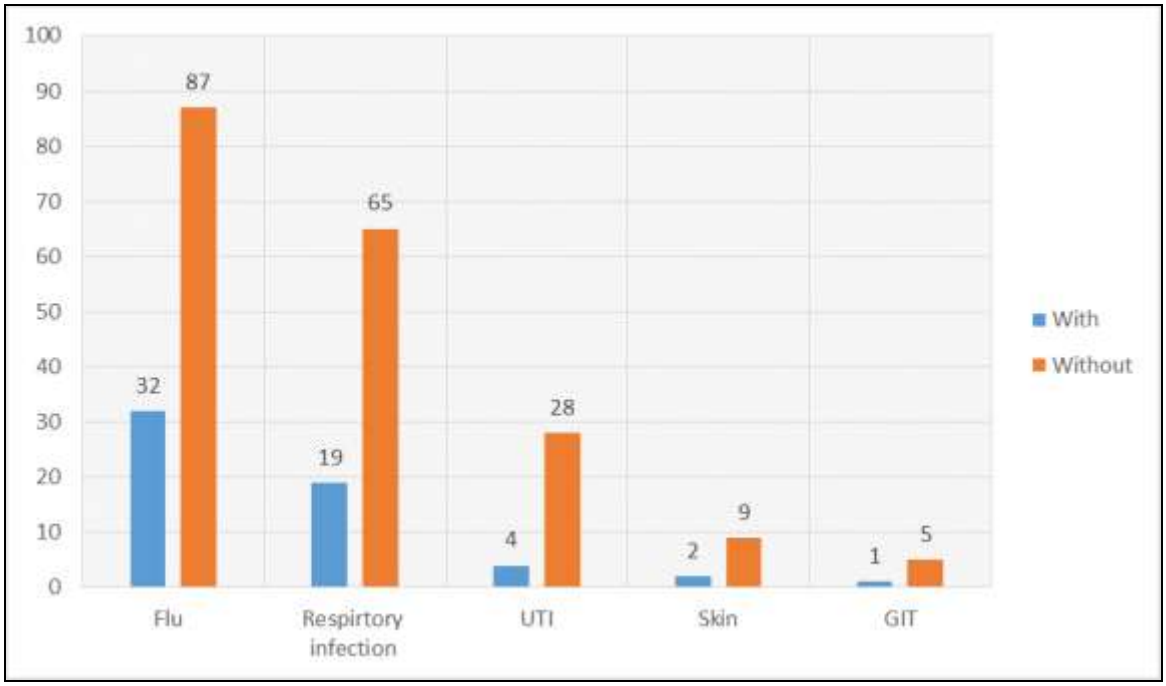

Figure 1. Percentage use of antibiotics with and without prescription for various conditions

Discussion:

Prevalence of self-medication among university student has remained common in both developing and developed countries, especially among young adults[8,9]. Beside the benefits of such practice e.g. economic and save time, its harmful consequences including drug misuse, side effects, drug interaction and abuse. Moreover, the emergence of bacterial resistance with antibiotics self-medication is a crucial problem globally[10.] In this study, we have analyzed the knowledge and prevalence of antibiotics self-medication among medical students in Tripoli University, Libya. This is the first study done with the aim examining the antibiotic usage among Medical students at our university.

Our finding in the current study reported 77% of respondents used antibiotics for self-medication. This is quite difference to the use of prescribed antibiotics (23%). The prevalence of self-medication with antibiotics among student in the present study is comparable to that reported by previous studies [2,11]. Social and economic factors including lifestyle, immediate available drugs, consultation cost, time consuming in clinics, and lack of nearby healthcare clinic are some of the leading causes for self-medication among population [13,14]. The reported results were very alarming especially in the light of the high awareness of respondents of bacterial resistance associated with misuse of antibiotics (91.7%). This highlights the prompt necessity for educational strategies to be further expanded which would enable students to get better knowledge on antibiotics[15].

A study conducted in Egypt showed the prevalence of self-medication among university students was 62.9%. Younger age, female, medical, and those having home pharmacy students were more practice self-medication than their peers with significant difference between them. The authors concluded that suitable counselling and public health education would be successful interventions[12]. A study by Nunez et al. 2017, showed that 65.4%% of the questionnaire respondents self-medicated of antibiotics, and this high prevalence could be due to the difficulty of access to health care centres and poor income levels to access private physicians[16]. Pharmacy students showed good and moderate knowledge of regarding the antibiotics, but half of them use antibiotics by self-decision and stated that they will not serve the antibiotics without medical prescription[12]. An Indian study demonstrated that pharmacy students had used antibiotic with self-medication, indicating the development of antibiotic resistance due to either medication non-adherence or inconsistent antibiotic usage [17].

Our results also reported that the most frequently self-medicated drugs by Medical students were Co-amoxiclav by 61.8%, and amoxicillin by 26.3%, which is also consistent with other published studies [16,18,19].

This may be because it is the most used and prescribed antibiotics by doctors globally. Moreover, 42.3% of students who used antibiotics by self-decision admitted not completing the course of treatment. Similarly, the course of antibiotics that prescribed by physicians was not completed by nearly 32.8% of students. It is also in the present study, whether antibiotics prescribed or self-medicated, were basically taken to treat flu and respiratory tract infection which are known to be insensitive to antibiotics as they are mostly caused by viral infection.

The practice of antibiotic prescription by only physician does not exclude a possibility that they can be used for self-medication. Antibiotics can be dispensed from pharmacies without prescription, or can be supplied by relatives or friends. Some patients urged physicians to write a prescription of antibiotics for them. For instance, previous study reported pressure from parents on paediatrician to prescribe antibiotics for their children in believing of the efficacy of antibiotics treatment[20]. Being that our study showed high rate of self-medication of antibiotics among our university students. Respondents could also have poor knowledge about what an antibiotic is, although this may be a minor issue, especially among our students, as they were all university students. For these reasons, it is indecisive whether our results are generalizable to other universities in Libya. It is also important to focus the efforts of health authorities and the academic staff on interventions to raise public knowledge of such essential health issues.

Conclusion

There is high prevalence of self-medication practice among undergraduate medical students which constitutes a health problem that needs education intervention. Flue, upper respiratory tract infection, gastrointestinal disorders, skin conditions and urinary tract infection were the main reasons for self-medication. Previous experience, doctor advice on last visit, pharmacist advice, and opinion of a friend or relative were major criterion for selection of antibiotics. Local community pharmacies play a crucial role as a source of dispense of antibiotics. Having this in mind, implementation of a specified module for a proper usage of the antibiotics in the faculty of pharmacy and faculty of Medicine would be worth considering.

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