

Utilization of Antibiotic among University Medical Students from Tripoli, Libya

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Citation: Atia A (2018) Utilization of Antibiotic among University Medical Students from Tripoli, Libya. J Antibio Res 2(2): 201

Received Date: July 27, 2018 Accepted Date: November 27, 2018 Published Date: December 3, 2018

Abstract

Background: Irrational antibiotic use has led society to antibiotic resistance, a serious health problem worldwide. This study aimed to assess the prevalence of antibiotics self-medication among university medical students in Tripoli city.

Methods: a pre-validated questionnaire [Translated to Arabic language] was distributed to 305 students at Tripoli University (Faculty of Medicine Technology) and students were requested to report antibiotic use with or without prescription in the year 2017. The questions enclosed demographic information as well as frequency of antibiotic use, completion of course, status for which it was used and the type of utilized antibiotic. A total of 257 forms were completed and returned (response rate 84.2%).

Results: Most of surveyed students were females (243, 94.5%), with average age of 24.8 years (range 18-25). Occurrence of antibiotic use with and without a prescription was high (98.8%). The pharmacy was the main place where the majority obtained antibiotics (82.5%). The course of antibiotic was completed by greater number of respondents with prescription (68.3%). Influenza, 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. The basis for using antibiotics without a prescription includes doctor advice on last visit (36.5%), previous experience (27.9%), pharmacist advice (23.3%), and advice of relative (12.1%).

Discussion: The findings undoubtedly display high prevalence of antibiotic use with and without prescriptions. Irrational use of antibiotics is common among university Medical students and required necessary interventions directed to increase students' knowledge of antibiotic misused issues.

Conclusion: 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.

Keywords: Antibiotics; Self-medication; Misuse; Students; Libya

Introduction

Self-medication with antibiotics is a kind of indiscriminate use of antibiotics [1]. It's a common practice among university Medical students worldwide [2]. Responsible self-medication is encouraged by World Health Organization (WHO) as it helps in the averting and treating a minor illness [3]. However, the irrationality of antibiotics use for self-medication has been reported in several developing and developed countries [4]. Many studies reported high occurrence of self-medication with antibiotics among medical and non-medical students [5]. The misuse of antibiotics is danger to both individuals and the community as it is the cause for development of resistant strain of bacteria [6]. Among the many aspects that contribute to misuse of antibiotics is lack of access to healthcare, extensive dispensing by pharmacists of antibiotics without a prescription, lack of regulatory control and prolonged delays to medical care in hospitals [7]. Antibiotics self-medication has become a substantial public health difficult due to a steady raises in financial and cultural reasons [8]. In Libya, evidence about self-medication with antibiotics among undergraduate medical students are inadequate. A high rate of self-medication with antibiotics in Libya was reported previously and a likely link to respiratory tract infections [9,10]. Therefore, the present study is conducted to explore the prevalence of self-medication with antibiotics among undergraduate medical students of Tripoli University, Tripoli, Libya.

Subjects and Methods

A prospective cross-sectional survey was conducted during March to July 2018, and was approved by the research committee

of faculty of Medical technology, Tripoli University, Libya. Data was collected using a pretested self-administered questionnaire with both open and closed ended questions. The questionnaire was written in English (Translated verbally to the local language) and was pre-validated on a sample of 5 students and comments were taken into consideration. A total of 305 questionnaires were randomly distributed to students of faculty of pharmacy (163 questioners) and faculty of Medical technology (142 questioners), Tripoli University, Libya. The questionnaire contained three open and closed questions that was clarified to all students participated in this study. The first section documented the socio-demographic aspect of students such as age, gender, and year of study. The second section consisted of eight closed questions to deliver facts on the exercise of using antibiotics. The third section consisted of four questions intended to assess the perception of respondents toward antibiotics. A high level of confidentiality was kept throughout the study with written informed consent obtained prior data collection. Students were asked to report antibiotic use with or without prescription in the year 2017. 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 305 surveyed students participated in this study, a total of 257 forms were completed and returned (response rate 84.2%). The majority of students (243, 94.5%) were females and the average age was 24.8 years (range 18-25) (Table 1). As shown in Table 2, the prevalence of antibiotic use with and without a prescription was high. Antibiotics were obtained with a medical prescription by 60 (23.3%) and used for self-medication without prescription by 197 (76.6%) of students. The course of antibiotic was completed by the larger number of respondents with or without prescription ([41, 68.3%], [115, 58.3%] respectively). Categories of antibiotics and basis for their use are revealed in (Table 3). The most frequently used antibiotics with or without a prescription were co-amoxiclav, amoxicillin, and cefixime. The most commonly prescribed antibiotics were co-amoxiclav (32, 53.3%), amoxicillin (10, 16.6%), and cefixime (11, 18.3%). For self-medication contributors, the order was the same, the frequently used antibiotics were co-amoxiclav (123, 62.4%), amoxicillin (51, 25.8%) and cefixime (13, 6.6%). The pharmacy was the main source where the majority

Variable	Frequency	Percentage
Gender		
Female	243	94.5%
Male	14	5.4%
Age		
15 – 17	67	26%
18 – 25	179	69.6%
26 – 30	10	3.8%
30 or more	1	0.3%
Career studies		
Pharmacy	163	53.4%
Medical Technology	142	46.6%

Table 1: Demographic data distribution of respondents (N=257)

	Number of respondents (%)	
	With a prescription (n=60)	without a prescription (n=197)
Used Antibiotics	60 (23.3%)	194 (76.6%)
How many times		
Once	23 (38.3%)	69 (35%)
Twice	13 (21.6%)	48 (24.3%)
Three time	17 (28.3%)	43 (21.8)
More than three time	7 (11.6%)	37 (18.7)
Completed the course		
Yes	41 (68.3%)	115 (58.3%)
No	19 (31.6%)	82 (41.6%)
Duration of use		
Three days	14 (23.3%)	101 (51.2%)
Five days	28 (46.6%)	67 (34%)
Seven days	11 (18.3%)	18 (9.1%)
More than seven days	7 (11.6%)	11 (5.5%)

Table 2: Frequency and duration of use and completion of course of antibiotics

Type of Antibiotic	Number of respondents (%)	
	With a prescription (n=60)	without a prescription (n=197)
Co-amoxiclav	32 (53.3%)	123 (62.4%)
Amoxicillin	10 (16.6%)	51 (25.8%)
Cefixime	11 (18.3%)	13 (6.6%)
Tetracycline	4 (6.6%)	3 (1.5%)
Metronidazole	3 (5%)	7 (3.5%)
Basis for use		
Previously doctor's advice		72 (36.5%)
Previous experience		55 (27.9%)
Advice by Pharmacist		46 (23.3%)
Family advice		24 (12.1%)
Source		
Pharmacy	51 (85%)	181 (91.8%)
Home drug cabinet	9 (15%)	16 (8.3%)
Knowledge of bacterial resistance		
Yes	52 (86.6%)	159 (80.7%)
No	8 (13.3%)	38 (19.2%)

Table 3: Type and basis of antibiotic used their source, and awareness of respondents of the risk of bacterial resistance

obtained antibiotics (85% with prescription, 91.8% without prescription). Unexpectedly, 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 influenza, upper respiratory tract infection, gastrointestinal disorders, skin conditions and urinary tract infection (Figure 1). Basis for using antibiotics without a prescription include doctor advice on last visit (36.5%), previous experience (27.9%), pharmacist advice (23.3%), and advice of relative (12.1%).

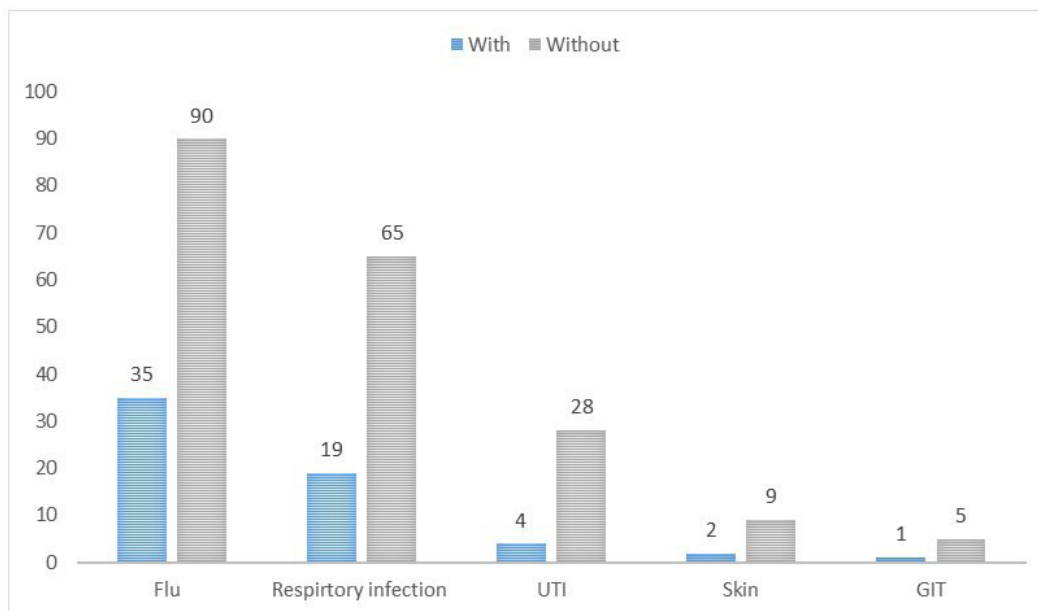


Figure 1: Percentage use of antibiotics with and without prescription for various conditions

Discussion

Occurrence of self-medication among Medical university student has remained common in both developing and developed countries, especially among young adults [11,12]. Besides 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 [13]. In this study, we have assessed the prevalence of antibiotics self-medication among medical students in Tripoli University of Libya. This is the first study done with the aim examining the antibiotic usage among Pharmacy and Medical technology students in our university. Nevertheless, a high use of antibiotic self-medication

was previously reported in the country [9,10]. Our finding in the present study reported 76.6% of respondents used antibiotics for self-medication. This is quite difference to the use of prescribed antibiotics (23.3%). The prevalence of self-medication with antibiotics among student in the present study is comparable to that reported by previous studies [14-16]. Social and economic factors including lifestyle, immediate available drugs, consultation cost, time consuming in clinics, and lack of nearby healthcare clinics are some of the leading causes for self-medication among population [17,18]. 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 [18]. 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. They concluded that suitable counselling and public health education would be successful interventions [13]. 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 [2]. 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 [14]. 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 [19]. Our results also reported that the most frequently self-medicated drugs by Medical students were Co-amoxiclav by 62.4%, and amoxicillin by 25.8%, which is also consistent with other published studies [2,20,21]. This may be because it is the most used and prescribed antibiotics by doctors globally. Moreover, 41.6% 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 influenza 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 [22]. 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

This study revealed important findings, a high incidence of self-medication practice among undergraduate Medical students which constitutes a health problem related to inadequate public knowledge of antibiotics. Influenza, 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 relative were major criterion for selection of antibiotics. Education programs should be developed, targeting specific public groups identified in this study, with lower antibiotic knowledge and higher self-medication risk. Finally, the attention of health care policy makers should be focused on physicians and pharmacists, as the main information providers of rational antibiotic use, as well as on community pharmacies, identified as the main source of non-prescription antibiotics.

Acknowledgement

We are grateful for all the respondents for accepting to participate in this study.

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