Antibiotics Use With and Without a Prescription in Healthcare Students

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Abstract The aim of the study was to determine the prevalence of self-medication with antibiotics in pharmacy and dental students as compared to their prescribed use. A pre-validated questionnaire was distributed to 300 students in the class rooms and students were asked to report antibiotic use with or without prescription in the year 2012. 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. The response rate was 73%. The majority of students (179, 89.5%) were females and the average age was 20.4 years (range 18-23). Prevalence of antibiotic use with and without a prescription was high (40 %). The pharmacy was the main source where the majority (slightly more than 90%) obtained antibiotics. The course of antibiotic was completed by larger number of respondents with (75.3%) than without (63.2%) prescriptions. Influenza, upper respiratory tract infection, skin conditions, gastrointestinal problems and urinary tract infection were the conditions for which antibiotics were used. The most common antibiotics used were amoxicillin, amoxicillin- clavulanic acid, and penicillin. Basis for using antibiotics without a prescription include previous experience (24, 12%), doctors advice on last visit (25.8%), pharmacist advice (21.4 %) and advice of a friend/relative (20.2 %). The results clearly demonstrate high prevalence of antibiotic use with and without prescriptions. Irrational use of antibiotics is common among university students and require effective interventions directed to increase students awareness of the problems associated with such a trend. Educational programs should be instituted 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, students

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1. Introduction

Self-medication is a common practice among university students [1,2,3]. Responsible self-medication is encouraged by World Health Organization [4] as it helps in the prevention and treatment of minor illness. However, irrational use of antibiotics for self-medication has been documented in general population in various developing and developed countries [5-11]. Several studies have also demonstrated high prevalence of self-medication with antibiotics among medical and non-medical students [2,12,13,14,15,16]. The misuse of antibiotics is of risk to both the individual and the community at large as it leads to increased risk of adverse effects and the emergence of bacterial resistance ([3] Sharif et al., 2008, [17] Martinez et al., 2007) Among the many factors that contribute to misuse of antibiotics is the liberal dispensing by pharmacists of antibiotics without a prescription. Information about self-medication with antibiotics in university students are, to our knowledge, scarce. Therefore, the present study is undertaken to investigate the magnitude of self-medication with antibiotics in university students and suggest practical interventions that may reduce the extent of irrational antibiotic use.

2. Methods

This anonymous questionnaire- based study was carried out during November, 2012, using a pre-validated questionnaire consisting of both open-ended and closed-ended item as modified from the questionnaire used by other investigators [14]. The study was approved by the research and Ethics Committee of the Colleges of Medicine and Health Sciences, University of Sharjah, United Arab Emirates. The questionnaire was in English and was first pre-validated on a sample of 6 students. All comments were taken into consideration. A total of 300 questionnaires were distributed to second and third year pharmacy and third year dentistry students. The questionnaire was explained to all students participating in the study. Students were asked to report antibiotic use with or without prescription in the year 2012. The questionnaire contained questions covering demographic...
information namely age, sex, living place and questions focusing on antibiotic use with or without a prescription, frequency and duration of use, conditions for which antibiotic was used, type of antibiotic and basis for using it, source of antibiotic and awareness of misuse and bacterial resistance.

Descriptive statistics were calculated using SPSS program version 18. The data were summarized as percentages and frequencies. P-value < 0.05 considered the cutoff for statistically significant differences.

3. Results

Two hundred and nineteen students completed the questionnaire yielding a response rate of 73%. The majority of respondents (179, 89.5%) were females. The average age of respondents was 20.4 years (range 18-23). Respondents living with their families comprised 122 (55.7%) while those living in dormitory were 97 (44.3%). Forty two (19.2%) students did not use antibiotics during the year 2012. Antibiotics were obtained with a medical prescription by 89 (40.6 %) and used for self – medication without medical consultation by 88 (40.2 %) of students. Frequency and completion of course and duration of use are shown in Table 1.

Table 1. Frequency and duration of use, and completion of course of antibiotics. Total number of respondents is 219 including 42 (19.2%) students who did not use antibiotics

| Number of respondents (%) | With a prescription (n=89) | without a prescription (n=88) |
|---------------------------|---------------------------|-----------------------------|
| **Used Antibiotics**      |                           |                             |
| Amoxicillin-Clavulinic acid | 36 (40.9)                | 43 (48.9)                   |
| Amoxicillin               | 37 (42.1)                | 24 (27)                     |
| Penicillin                | 6 (6.8)                  | 9 (10.1)                    |
| Azithromycin              | 5 (5.7)                  | 6 (6.7)                     |
| Tetracycline              | -                        | 4 (4.5)                     |
| Cephalosporins            | 1 (1.1)                  | 3 (3.4)                     |
| Sulphonamides             | 4 (4.5)                  | -                           |
| **Basis for use:**        |                           |                             |
| Doctor’s advice on last visit | 23 (25.8)                |                             |
| Previous experience       | 24 (27)                  |                             |
| Pharmacist advice         | 19 (21.4)                |                             |
| Advice of a friend/relative | 18 (20.2)                |                             |
| Doctor’s prescription to a friend | 3 (3.4)                |                             |
| Left over antibiotic      | 1 (1.1)                  |                             |
| **Source:**               |                           |                             |
| Pharmacy                  | 82 (93.2)                | 82 (92.1)                   |
| Home drug cabinet         | 6 (6.8)                  | 7 (7.9)                     |
| **Awareness of bacterial resistance:** |
| Yes                       | 68 (77.3)                | 60 (67.4)                   |
| No                        | 20 (22.7)                | 28 (31.5)                   |

Antibiotics were used with or without a prescription for mainly influenza, respiratory tract infection, skin problems gastro-intestinal problems and urinary tract conditions (Figure 1).

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

Self-medication among university students is a common practice [2,13,18]. Such a component of self-care has many benefits to the individual as it is economic, saves time, and allows for an opportunity to take responsibility of own health [1]. However, it is also not devoid of hazardous consequences including misdiagnosis of condition, misuse of medication, adverse effects, and drug interaction and abuse. The emergence of resistant pathogenic microorganisms in case of self-medication with antibiotics is a serious problem worldwide [19,20]. This problem is progressively increasing particularly in developing countries where antibiotics can be obtained without a prescription. In the present study, 40.2% of respondents obtained antibiotics for self-medication. This is quite similar to the use of prescribed antibiotics (40.6%). The prevalence of self-medication with antibiotics in the present study is comparable to that reported for the community of Abu Dhabi [10], and Iranian [14] and Jordanian [12] students. However, it is higher than that observed in the general population in many European countries [6], but lower than that reported for Palestinian [2] students. Many factors may contribute to the high prevalence of self-medication with antibiotics including the lack of time to visit a clinic due to study schedule, high economic status of student’s families, over confidence of pharmacy and dental students, pattern of prescribing by general practitioners and the liberal dispensing of antibiotics by pharmacists despite the strict bylaws and regulations by health authorities. This is very alarming particularly in the light of the high awareness of respondents of bacterial resistance associated with misuse of antibiotics. Moreover, slightly more than one third of students using antibiotics without a prescription admitted not completing the course of treatment. Similarly the course of prescribed antibiotics was not completed by nearly 25% of students. It is also worth noting that in the present study, antibiotics, whether prescribed or self used, were principally taken to treat flu and respiratory tract infection. In the present study, more than 50% of respondents in both groups used antibiotics to treat those two conditions which are well known to be insensitive to antibiotics. Incorporation in the curricula of health sciences colleges of topics covering the rational use of antibiotics- Does it really happen in Europe? [9,8] The prevalence of inappropriate use of antibiotic whether prescribed or employed for self-medication is rather high and common among pharmacy and dental students. More studies using larger sample size and studying the problem in all university students are needed. Moreover, efforts should stress on interventions including educational programs in the form of lectures, campaigns, workshops, seminars, leaflets and preparation of guides of conditions for which antibiotic use is not suitable. Also health authorities should practice more control on pharmacies and also on prescribing of antibiotics by physicians.

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