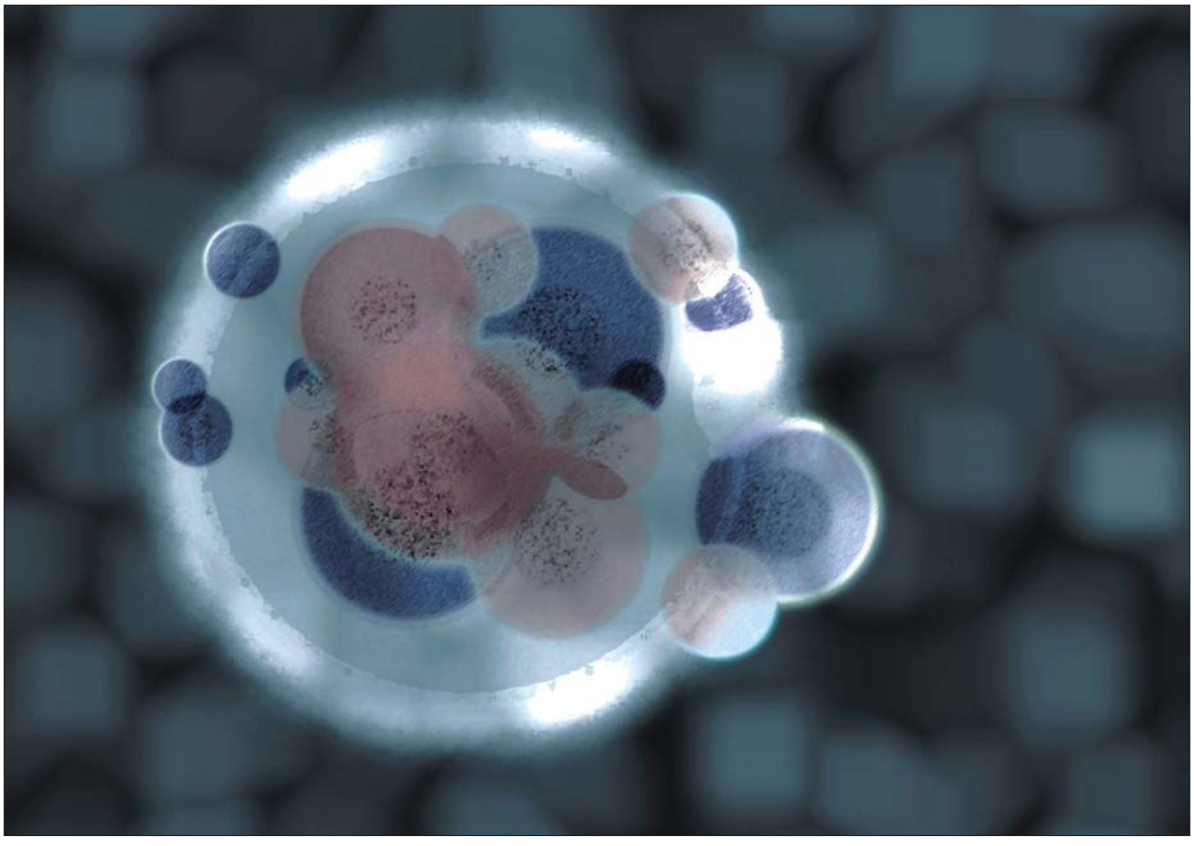

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Self Medication with Antibiotics, Is it a Problem among Iranian College Students in Tehran?

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Abstract: The aim of the present study was to evaluate the knowledge and behavior toward antibiotic self-medication among college students in the capital of Iran (Tehran). A close and open-ended questionnaire was used to collect data from a sample of 160 students, randomly chosen from Shariaty Technical Faculty, Tehran, Iran. Data was collected using self administered questionnaires with open-ended and close-ended items. Data were entered and analyzed using SPSS 14 and the results were presented as the percentage. About 97.5% of respondents filled and returned the questionnaire. Self-medication with antibiotics was reported by 53% of students during the last 3 months. The main indication for self-medication with antibiotics was respiratory problems (73.3%) such as common cold and sore throat. Amoxicillin was the most commonly used antibiotic (40%). The main source of medicines was drugs which stored in students home (47.8%) and after that drugstores (44.8%). Only 26.8% of antibiotic users completed the course of antibiotic therapy. The prevalence of self-medication with antibiotics among college students was high. Educational programs are needed to teach university students about the potential problems of self-medication with antibiotics.

Key words: Antibiotics, self-medication, Iran, students

INTRODUCTION

Anti-microbial resistance is a rapidly increasing worldwide problem (Levy, 2005). In developing countries, most illnesses are treated by self-medication (Geissler *et al*., 2000). It is now evident that both developing countries such as Sudan, Jordan, Trinidad and Tobago and Brazil (Awad *et al*., 2005; Al-Azzam *et al*., 2007; Sawair *et al*., 2009; Parimi *et al*., 2004; Volpato *et al*., 2005), as well as, developed countries such as Spain, Greece, Russia, Romania and Lithuania, USA, Italy and Malta (Vaananen *et al*., 2006; Contopoulos-Ioannidis *et al*., 2001; Mitsi *et al*., 2005; Stratchounski *et al*., 2003; Grigoryan *et al*., 2006; Richman *et al*., 2001; Borg and Scicluna, 2002) are experiencing many aspects of inappropriate use of medications in their health care facilities (Otoom and Sequeira, 2006).

Self-medication with antibiotics has the potential to produce harmful effects on the society as well as, on individual patients (Awad *et al*., 2005). In Iran there is suspicions that self medication is high. This may be due to the fact that antibiotics can be obtained from pharmacies without the requirement of a prescription even though antibiotics are prescription-only-medicine. The fact that the violation of this law is subject to financial penalty is not strictly implemented allowed such practices to occur. Additionally, antibiotics can be supplied by friends, relatives and other ways. Self-medication with antibiotics may increase the risk of inappropriate use and the selection of resistant bacterial strains (Grigoryan *et al*., 2007). Antimicrobials resistance is a current problem world-wide particularly in developing countries, where antibiotics are often available without a prescription (Chalker, 2001). There have been several reports addressing the extent of self-medication practices with antibiotics among university students in other countries (Sawalha, 2008; Buke *et al*., 2005), but non from Iran. Thus the aim of this study is to evaluate the current knowledge and behavior regarding antibiotic use among students of a college (Shariaty Technical Faculty) in Tehran, capital of Iran, to determine the extent of self-medication with antibiotics in this population group.

MATERIALS AND METHODS

The target population was students attending Shariaty Technical Faculty in Tehran and the project was conducted in winter of 2007 (for 6 months). A total of 160 pupils (all female, chosen randomly) participating in the study.

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The questionnaire was composed by a pharmacist and a pharmacologist. It consisted of both closed- and open-ended questions. A total of 21 questions were stated concerning the following: socio-demographic characteristics, patterns of self-medication with antibiotics (e.g., type of antibiotics used, the health condition that pushed the student to use antibiotic without prescription and so on).

The survey was conducted by some trained hygiene students. The respondents completed a self-administered questionnaire and the researchers were present in case the respondents might need assistance. After completion of data collection, it was reviewed, organized and evaluated by Chi-square test and analysis of variance (One-way ANOVA) using the Statistical Package of Social Science (SPSS Inc., Chicago, IL) for windows version 14 and p-value of <0.05 was considered statistically significant.

RESULTS

A total of 160 (female) college students agreed to participation in the study. Twenty eight percent of them were studied in hygiene course and 72% in other courses (non-medical sciences). Eighty six percent of them were aged between 18-22 years.

Fifty three percent of students of study population had used antibiotics without a prescription or medical advice within 3 months of study period.

Table 1: Demographic and behavioral characteristics of the respondents

Variable	Students (%)
Used self-med with AB	53.0
How many times	
Once	55.8
Twice	10.4
More than 3 times	16.1
Completed the course	26.8

Table 2: Medical conditions that pushed the respondents to self-medicate with antibiotics

Condition	Students (%)
Respiratory problems	66.7
GI problems	23.0
Systemic problems	7.7
Skin problems	2.6
Urine infection	0.0

Table 3: The type of antibiotic used by respondents in self-medication

Antibiotic name	Students (%)
Penicillines	68.0
Amoxicillin	40.0
Penicillin	13.3
Co-amoxiclave	6.8
Ampicillin	8.0
Tetracyclines	2.7
Cephalosporines	4.0
Sulfanamides	5.4

The frequency of antibiotic use was once in 55.8%, twice in 10.4 and 3% or more in 16.1% in the study period ($p<0.05$). Only 26.8% of all students attended in this study completed the course of antibiotic therapy ($p<0.05$) (Table 1).

The commonest indication for self-medication among respondents was a perceived respiratory infections by 66.7% of all respondents (Table 2).

Table 3 shows the antibiotics that were most frequently used for self-medication. Penicillins were ranked highest (68%) and in this group Amoxicillin was most frequently self-medicated (40%) among all the antibiotics and after that injecting penicillins (13.3%) were the most frequently medication among students (Table 3).

DISCUSSION

The current study examined antibiotic self-medication among students of a college in Tehran. Studies on factors associated with antibiotic misuse are important to prevent the occurrence of antibiotic resistance (Sawair *et al*., 2009), which is a well-known problem in the most countries, as told in introduction (Awad *et al*., 2005; Al-Azzam *et al*., 2007; Sawair *et al*., 2009; Parimi *et al*., 2004; Volpato *et al*., 2005; Vaananen *et al*., 2006; Contopoulos-Ioannidis *et al*., 2001; Mitsi *et al*., 2005; Stratchounski *et al*., 2003; Grigoryan *et al*., 2006; Richman *et al*., 2001; Borg and Scicluna, 2002).

The population of this study were all Iranians, most of them living far from their families in dormitories, therefore they are adolescents with shared socio cultural back ground.

In this study more than 53% of the respondents practiced self-medication with antibiotic within 3 months before the study. This rate is similar to the findings of a study in turkey with 45.8% of self-medication with antibiotics (Buke *et al*., 2003) and also a recent study by Sawair *et al*. (2009) in Jordan by 40.7% and other studies in Sudan by 48% (Awad *et al*., 2005), Lithuania by 39.9% (Berzanskyte *et al*., 2006) and also USA by 43% (Richman *et al*., 2001).

Higher rates of self-medication are reported 59.4% in China (Bi *et al*., 2000)and Greece by 74.6% (Mitsi *et al*., 2005). Although, there are some lower rates, reported from Palestinian students by 19.9% (Sawalha, 2008), Mexico by 5% (Calva and Bojalil, 1996) Sweden by 17% (Svensson *et al*., 2004), Malta by 19.2% (Borg and Scicluna, 2002) and Finland by 28% (Vaananen *et al*., 2006). It seems that the lower rates in cause of population or the season, cause the rate of respiratory diseases in fall is really high among students and especially in dormitories.

The 26.8% of respondents completed the course of antibiotic therapy. This is near the result of study by Sawair *et al*. (2009) in Jordan by 37.6%.

The most common health condition treated by antibiotics was respiratory tract infections (cold, sore throat and so on). Such health conditions were also reported to be commonly self-medicated in Jordan (Sawair *et al*., 2009), Palestine (Sawalha, 2008), Turkey (Buke *et al*., 2005) and European countries (Grigoryan *et al*., 2006). The above conditions are known to be mostly viral (Linder and Stafford, 2001), requiring no antibiotic treatment.

The main antibiotics used in self-medication were penicillins in general, particularly Amoxicillin by there students. Similar results are reported by other studies worldwide (Al-Azzam *et al*., 2007; Al-Bakri *et al*., 2005). Maybe, it is cause of the low costs of this antibiotic group in the world (Al-Azzam *et al*., 2007) or it could be cause of wide prescription by physicians so most of people have recognized this drug by prescription.

It is agreed by some researchers that it is necessary to give more information to the people on antibiotics and about the adverse effects of inadequate use of antibiotics without prescriptions (Carey and Cryan, 2003) to diminish the rate of non-prescribed antibiotic use and also to adequate use of this category of drugs.

We suggest specific education about antibiotics in universities and also improve education about antibiotics in medical branches in universities, although that knowledge does not always correlates with behavior.

Also, because that university is a part of society, we suggest educational programs for the general public. So physicians should be awarded to instruct their patient not to use the prescribed antibiotics for upcoming conditions and to complete the course of therapy.

Antibiotic self-medication maybe a consequence poor regulations of pharmacies, so there is also a need to enforce the law on pharmacies.

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