Evaluation of use of antibiotics without prescription among young adults in Albania case study: Tirana and Fier District

Jorgji K[1], Bebeci E[1], Apostoli P[1], Apostoli A[2]

[1]University of Medicine, Faculty of Pharmacy, Department of Professional Chemistries and Pharmacognosy, Tirana
[2]Gastroenterologist at "Olympus" Private Medical Clinic, Fier
Albania

Abstract

Background: Self-medication is defined as the utilization of drugs to treat self-diagnosed disorders or symptoms, or the irregular or continuous use of a prescribed drug for chronic or repeated diseases or symptoms. The main problem with self-medication with antimicrobials is the emergence of pathogenic resistance. Antimicrobial resistance is an existing problem world-wide, mainly in developing countries. The aims and objectives of the study presented in this article are to evaluate the prevalence of purchase of antibiotics without prescription and appropriateness of use among adults and to determine the impact of the education level on the sensibility level over the use of antibiotics.

Methods: This was a questionnaire based study of 3 month duration. The study includes data from 350 young adults (182 men/172 women, mean age ± SD: 34.72 ± 13.7 years), who visited ten different pharmacies located in the city of Tirana and the "Olympus" Private Medical Clinic in Fier between December 2012 and March 2013. Also a part of questionnaires was distributed by e-mail.

Results: The results of this study showed that out of 350 young adults, 273 (78.14%) of them used antibiotics as self medication. The most common reasons for self administration of antibiotics were fever 171 (29.23%), sore throat 170 (29.06%) and cough 83 (14.19%). In this study we observed that the most common source of information regarding self-medication is the pharmacy (community pharmacists) 166 (36.40%) and most common antibiotic used as self-medication is amoxicillin 70 (19.39%). Authors also determined the impact of education level over the use of antibiotics. The results showed that adults with low and medium education level (7.986% and 43.056% respectively) were most likely to use antibiotics as self-medication.

Conclusions: The findings from this study highlight the striking prevalence of self-medication among young adults in Albania and the lack of awareness about the risks associating their use. We recommend that a holistic approach must be taken to prevent this problem from escalating which would involve awareness and education regarding the implications of self medication, strategies to prevent the supply of medicines without prescription by pharmacies and strict rules regarding pharmaceutical advertising.Hippokratia 2014; 18 (3): 217-220.

Keywords: Antibiotics, self medication, resistance, questionnaire study

Corresponding author: Katina Jorgji, MSc, University of Medicine, Faculty of Pharmacy, Department of Professional Chemistries and Pharmacognosy, Tirana, Rruga "Shefqet Musaraj" Nd. 54, H. 4, Ap. 12, PK: 1025, Tirana, Albania, tel: +355683149696, e-mail: kjorgji@yahoo.com, kjorgji29@gmail.com

Introduction

Self-medication is defined as the utilization of drugs to treat self-diagnosed disorders or symptoms, or the irregular or continuous use of a prescribed drug for chronic or repeated diseases or symptoms[1,2]. A major deficit of self-medication is the lack of clinical assessment of the condition by a qualified medical professional which could result in overlooked diagnosis and hindrances in appropriate treatments[2,3]. Pharmacists in particular can play a key role in giving advice to consumers on the proper and safe use of medicinal products intended for self-medication[1].

The chemotherapy of bacterial infections depends on the isolation of the infecting agent, categorization of the agent's antibiotic susceptibility and bringing the suitable antibiotic to the site of infection in adequate quantities to either kill the bacteria (bactericidal) or modify it to permit the body's immune response to eventually kill it[2,4].

The main problem with self-medication with antimicrobials is the emergence of pathogenic resistance[4]. The increase in antibiotic resistance in developing countries is of current public concern as it results in multiple resistant organisms leading to infections not easy to treat[2,5,6].

Studies showed that the prevalence of actual self-medication was high in eastern and southern Europe

and low in northern and western Europe[7,8]. These studies showed that the most common reasons for self-medication were throat symptoms and bronchitis while the main medication sources were pharmacies and medication leftover from previous prescriptions[7,8].

Self-medication and the use of leftover drugs are widespread mainly in countries where drugs are sold without prescriptions[2,9-10].

This study was conducted to find out the knowledge about dose, the duration of therapy, the adverse reactions (ADR) of the medicines used as self-medication and to know the source of information of medicine used as self-medication.

Aims of the study

Taking into account the actual situation and the problems that Albanian pharmaceutical marketing is facing, the unfair concurrence between pharmacies and the opening of pharmacies without criteria and being aware of similar studies performed in the Balkan region and worldwide, we decided to perform this scientific study.

The two main purposes of the study are: i) to investigate the prevalence of purchase of antibiotics without prescription and appropriateness of use among adults, and ii) to determine the impact of the education level on the sensibility level over the use of antibiotics.

Materials and methods
Population

The study included data from 350 young adults (182 men/172 women, mean age ± SD: 34.72 ± 13.7 years), who visited different community pharmacies located mainly in the cities of Tirana and Fier and the "Olympus" Private Medical Clinic in Fier between December 2012 and March 2013. Also a part of questionnaires was distributed by e-mail. The questionnaire was available on a site on internet and everyone could access and fill it in (https://docs.google.com/forms/d/1RdKJrH30KKb3IEA I0lyQeFWBImVyhFuqr_gDob3DIMI/viewform).

The mean age of self-medication recorded in the current study was young (34.72 years). This was expected because our study was focused primary on the young adults, for the reason that they are more informed and careful about use of antibiotics. Our primary hypothesis was that the younger the adult, the lower would be the tendency for antibiotics use as self-medication.

This study was carried out by physicians of the Private Medical Clinic in Fier and some pharmacists of ten different community pharmacies in Tirana. They asked each consecutive patient to fill an anonymous questionnaire and to return it at the practice. For those who didn't have time to fulfill it at the pharmacy, we required their e-mail addresses and so the questionnaire was sent to them in the electronic version. The refusal rate was very low, 5.83% (20 in 343 participants returned it without filling it out). The questionnaire consisted of specific questions regarding the knowledge about dose,

duration of therapy, ADR of medicines used as self-medication and to know the source of information of medicine used as self medication.

Statistical Analysis

Statistical analysis was performed using programs available in the SPSS statistical package (SPSS 20.0, Armonk, NY, USA). All variables were tested for normal distribution of the data. Data are shown as mean ± standard deviation. A chi-square test was used for categorical variables. $p < 0.05$ (two-tailed) was considered statistically significant.

Results

Use of antibiotics within the past 12 months was reported by 343 participants (97.17%). Two hundred and seventy three 273 individuals (78.14%) reported that they had received antibiotics without medical prescription at least once in the past 12 months. The major source of self-medication was the pharmacy without prescription (36.40%) followed by patients previous experience (28.51%), leftover medications at home (18.86%) and drugs obtained from relatives or friends (8.99%).

The most common reasons for self administration of antibiotics were fever in 172 patients (29.05%), sore throat in 172 (29.05%), cough in 87 (14.70%) and runny nose in 42 (7.09%) (Table 1).

The most frequently self-prescribed antibiotics were amoxicillin (19.39%), amoxicillin/clavulanic acid (amoxiclav) (15.24%), ciprofloxacin (8.86%), ampicillin (6.37%), tetracycline (6.09%) and trimethoprim/sulfamethoxazole (5.81%). When patients were asked if they could successfully treat common infectious diseases with antibiotics by themselves, 41.88% answered "Yes I can", 34.76% were not sure and only 23.36% answered "No I can not".

Seven point seventy five percent (7.75%) of the participants answered they didn't know the name of antibiotic used and 4.43% of them gave a wrong answer. Earlier discontinuation of antibiotics (29.05%) was reported when symptoms disappeared (Table 2). The most part of adults (36%) answered that they determined the dose of antibiotics by checking the package insert, 33.6% by consulting a pharmacist and 16.2% from their previous experiences. Our study showed that only 6.25% of young adults, who used antibiotics as self-medication, experienced an adverse event. The most common adverse event (74.3%) was an allergic reaction, followed by diarrhea (20.5%).

Finally, we determined the impact of education level over the use of antibiotics. Adults with low and medium education level, were more prone to self-medicate with antibiotics (7.986% and 43.056% of total self-medicated, respectively). On the other hand, majority (81.967%) of those not used self-medication practice, were adults with high education level (university degree) ($p < 0.05$).

Table 1: Most common reasons recorded, for antibiotic self-administration.

Reason for antibiotic self administration	Frequency	Percent (%)
Runny nose	42	7.1
Nasal congestion	31	5.2
Cough	87	14.7
Sore throat	172	29.1
Fever	172	29.1
Aches and pains	18	3.0
Vomiting	9	1.5
Diarrhea	34	5.7
Skin wounds	10	1.7
Pain and Burning during urination	2	0.3
Gums bleeding during tooth-brushing	3	0.5
White, cottage cheese-like vaginal discharge	1	0.2
Pain and redness of the tonsils	1	0.2
Chest pain	3	0.5
Others (unspecified)	7	1.2
Total	592	100.0

Percentages, in the table, are rounded to one decimal point.

Table 2: Antibiotic discontinuation time as recorded in the study.

Antibiotic discontinuation time	Frequency	Percent (%)
After a few days regardless of the outcome	93	28.4
After symptoms disappeared	95	29.1
A few days after the recovery	51	15.6
After antibiotics ran out	52	15.9
After consulting a doctor/pharmacist	30	9.2
Others	2	0.6
As medical protocols describe	1	0.3
After blood test analysis were normalized	2	0.6
After 3 days	1	0.3
Total	327	100.0

Percentages, in the table, are rounded to one decimal point.

Discussion

Our results showed that the prevalence of self-medication with antibiotics among young adults in Albania is high. Our results are comparable to those of the Greek population where a study showed that 77% of patients reported antimicrobial self-medication[11].

However, antimicrobial drug self-medication prevalence varies widely among different European regions. Studies in Denmark and Spain showed that self drug consumption was 3% and 11% respectively[12-13]. In Malta and Lithuania the prevalence of self-medication was 19% and 22% respectively[14-16]. A prospective survey of emergency department patients in the USA established that 17% of patients had taken leftover antibiotics without consulting a physician, most commonly for a cough (11%) or sore throat (42%)[16-17]. A recent study in Europe reported that Greece had one of the highest outpatient antibiotic uses in Europe with *cephalosporins* and *macrolides* being the most frequently used antibiotics[11-18].

Substantial variation in the prevalence rates of antimicrobial drug self-medication among the European regions suggests that socioeconomic factors play a role, as do disparities in health care systems such as reimbursement policies, access to health care, and drug dispensing policies[11,16]. Another factor is the acquisition of antimicrobial drugs from pharmacies without prescription, which occurred most frequently in eastern and southern European countries[11,16].

Self-medication with antibiotics is made possible via several sources:

a) they are legally available over the counter;
b) antibiotics initially prescribed by physicians are saved and subsequently used without medical consultation;
c) antibiotics are obtained through friends or relatives, and
d) they can be acquired via Internet[11,14,16].

In the present study the major source of self-medication is the pharmacy. A study by Contopoulos-Ioannidis et al, reported that 77% of Greek pharmacists offered antibiotics without a medical prescription[2,16]. The same study showed that most of this pharmacists offered

expensive broad-spectrum antibiotics. Antibiotics were most frequently offered for treatment of patients with symptoms that were suggestive of a common cold[2,16].

The study is descriptive, without comparisons between self-medicated and appropriately medicated patients. Thus, no definitive risk factors for self-medication can be drawn from the study in its current form. In addition, an association with the incidence of antibacterial resistance cannot be evaluated. Finally, it should be emphasized that the results of the study cannot be extrapolated in other settings and populations, since this was a study performed in a specific region and a young population.

Conclusions

In Albania, despite the open and rapid access to primary care services, it appears that a high proportion of young adult population prefers to use antibiotics without medical prescription.

A balance needs to be struck between safety and patient autonomy. Greater patient and public involvement in formulating both policy and practice against the drugs used as Self-medication is needed.

Restriction of sale of drugs with potentially harmful effects should be implemented effectively with monitoring systems between the physicians and pharmacists.

We recommend that a holistic approach must be taken to prevent this problem from escalating which would involve: 1) awareness and education regarding the implications of Self-medication, 2) strategies to prevent the supply of medicines without prescription by pharmacies, and 3) strict rules regarding pharmaceutical advertising and unfair concurrence.

Conflict of interest
Authors declare no conflict of interest.

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