

A survey of patient behaviours and beliefs regarding antibiotic self-medication for respiratory tract infections in Poland

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Abstract

Introduction: Self-medication can contribute to the inappropriate use of antibiotics in respiratory tract infections (RTI). This phenomenon has not been well described, particularly in Poland. The aim of our study was to describe the prevalence of antibiotic self-medication for RTI, to explore factors influencing antibiotic use without prescription, and to determine the available sources of such antibiotics.

Material and methods: A self-administered questionnaire completed by patients presenting to family medicine clinics at Lodz and Wroclaw from 1st March to 15th May 2010.

Results: A total of 891 patients in ten clinics completed the survey (response rate, 89.1%). Overall, 41.4% ($n = 369$) of patients reported self-medication with an antibiotic for RTI. The most common reason for antibiotic self-medication was a belief that antibiotics treat the majority of infections, including influenza and influenza-like illnesses (43.9%; $n = 162$). The predominant sources of antibiotics for self-medication were antibiotics from previous prescriptions stored by the patient at home (73.7%, $n = 272$), those received from a pharmacy without prescription (13.5%; $n = 50$), or from family members and friends (12.7%; $n = 47$).

Conclusions: Antibiotic self-medication for RTI was common in this population. This may be due to the belief that the antibiotics treat the majority of infections. A recommendation to either ask patients to return unused antibiotics to the physician's office or to dispense antibiotics in the exact amount which is necessary for an individual course, as well as the targeted education of pharmacy personnel and the general population, appear to be justified.

Key words: antibiotics, self-treatment, respiratory tract infections, available sources of antibiotics.

Introduction

The increase in resistance to antimicrobial drugs represents an important clinical and social problem [1, 2]. Many patients presenting to family medicine clinics have already started self-medication with antimicrobial agents [3]. Self-medication, defined as the administration of a therapeutic agent without a physician's prescription, can contribute to the inappropriate use of antibiotics without clinical indication. The most common reasons for self-medication in Europe are 'sore throat' and bronchitis [4, 5].

Symptoms of the common cold usually resolve within 7 to 10 days (with some symptoms possibly lasting for up to 3 weeks) without treatment [6, 7].

Nevertheless, coryzal symptoms, cough or fever may prompt patients to make therapeutic decisions without a consultation with a health care professional [3]. Self-medication is related to the overuse of antimicrobial drugs [8, 9].

Due to possible complications as well as growing bacterial resistance, antimicrobial therapy should be used only upon a physician's recommendation [10, 11] and if feasible following microbiology tests, particularly when streptococcal pharyngitis is suspected [12, 13]. Previous studies have revealed that self-medication with antibiotics is commonly encountered both in the United States (US) and in Europe, predominantly in cases of common cold and upper respiratory tract infections [4, 14]. Using unnecessary or inappropriate antibiotics can cause adverse effects, and lead to increasing numbers of drug-resistant microorganisms [15]. An estimated 142,505 visits were made each year to US emergency departments for drug-related adverse events attributable to systemic antibiotics. Antibiotics were responsible for 19.3% of all emergency department visits for drug-related adverse events, particularly allergic reactions [16]. The prevalence of self-medication is high in eastern and southern Europe and low in northern and western Europe [4, 5, 17].

The aim of our study was to describe the prevalence of antibiotic self-medication for respiratory tract infections, to explore factors influencing antibiotic use without prescription, and to determine the available sources of such antibiotics.

Material and methods

The study included data from 891 adults (304 men/587 women) presenting to 5 family medicine clinics in Lodz and 5 in Wroclaw and surroundings between 1st March and 15th May 2010. All physicians collaborated with vocational training units locally. Nurses asked each consecutive patient presenting to family physicians' office and able to give their voluntary informed consent to fill in an anonymous questionnaire and return it to the collection box; 100 study questionnaires were distributed per clinic. The questionnaire included 8 questions relating to demographic characteristics, self-treatment methods for managing infections, patterns of taking antibiotics and available sources of antibiotics without a physician's prescription.

Statistical analysis

Data are shown as number (*n*) and proportion (%). A χ^2 test was used to evaluate the statistical significance between the particular subgroups. Statistical analysis was performed using SPSS statistical package (SPSS 16.0, Chicago, USA).

Results

Out of 891 study questionnaires, 616 (69.1%) were obtained from participants from urban areas

(including 436 [70.8%] from Lodz, and 180 [29.2%] from Wroclaw), and 275 (30.9%) from rural areas (in the vicinity of Wroclaw). The majority of respondents (28.6%; *n* = 255) were 30-45 years old (including 24.8%; *n* = 153 urban, vs. 37.1%; *n* = 102 rural) or 46-60 years old (35.4%; *n* = 315) (including 36.9%; *n* = 227 urban, vs. 32.0%; *n* = 88 rural). The age group of 18-29 years old was smaller (18.3%; *n* = 163) (including 17.4%; *n* = 107 vs. 20.4%; *n* = 56 urban participants vs. rural, respectively). The age group above 60 years old (17.7%; *n* = 158) was the smallest (including 20.9%; *n* = 129 vs. 10.5%; *n* = 29 urban patients vs. rural, respectively). Female participants predominated both in the urban and rural groups (64.4%; *n* = 397 vs. 69.1%; *n* = 190, respectively).

A total of 369 participants (41.4%) reported taking antibiotics without consulting a physician. This was more common in rural areas, at 171 (62.2%) of 275 respondents in comparison to 198 (32.1%) of 616 from urban areas (*p* < 0.001; Figure 1). In both groups, the great majority of respondents acquired this antibiotic as tablets left over from previously used packs kept in their home medical kits, or, less often, from friends and family members. In addition, respondents from rural areas more frequently purchased antibiotics from a pharmacy without a prescription (Table I). The majority of persons who used antibiotics without consulting a physician agreed that the antibiotics were not effective against all respiratory tract infections. However, as many as 43.9% (*n* = 162) of respondents from this group believed that antibiotics were effective in the treatment of influenza and influenza-like illnesses. Conversely, the majority of 522 persons who reported not taking antibiotics without a physicians' recommendation believed that the antibiotics were not effective either in the treatment of influenza or other infections. In addition, a significantly higher percentage of participants in this

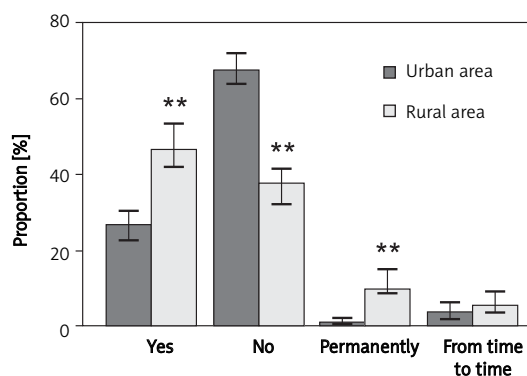


Figure 1. Patients' answers to the question "Have you ever taken antibiotics without your physician's recommendation?"

Data presented as percentage of answers related to populations of patients from urban (*n* = 616) and rural (*n* = 275) areas. Error bars represent 95% confidence interval (CI). RTI – respiratory tract infections; ***p* < 0.001 vs. urban area

Table I. Sources of antibiotics used without a physician's prescription

	Urban area, n (%)	Rural area, n (%)
Home	162 (83.1)	110 (62.1)#
From family/friends	22 (11.3)	25 (14.1)
From a pharmacy without a prescription	8 (4.1)	42 (23.7)#
Other	3 (1.5)	0 (0)

#p < 0.0001

group believed that the physician should prescribe antibiotics only if there was a medical need for such a decision (Table II).

Discussion

In Poland, antibiotics are prescribed very often for respiratory tract infections. Previous studies have revealed that in Lodz, approximately 72% of adult patients who presented with symptoms typical for a lower respiratory tract infection received an antibiotic [18, 19]. Even more frequent use of antibiotics for acute RTI has been reported in south-eastern Poland, including some rural areas [20, 21].

Data from our study confirmed frequent use of antibiotics without a physician's recommendation, especially in the rural environment. This latter finding may be related to a lower level of education in the rural population of Poland, a factor that has been associated with more frequent antibiotic self-medication [17].

Our findings differ from those of a recent multi-center European study, in which no difference was noted in the use of antibiotics without a physician's consultation between inhabitants of urban and rural areas [4]. In contrast, the results of a study from Lithuania indicated that the use of antibiotics without a prescription was 1.61-fold more frequent in rural than urban populations [9]. Published medical research on this topic relates mostly to the general population. According to a Spanish survey, 41% of participants had taken antibiotics (over the past 6 months) which had been acquired from a pharmacy without a physician's prescription [22]. Also, the findings of a US study indicated that the main source of self-medication with antibiotics were antibiotics kept at home, which were subsequently used by as many as 17% of patients [14]. In the population of Malta, as many as 19% of persons reported self-treatment with antibiotics [23]. In contrast, according to data from the northern part of Israel, almost 25% of survey respondents kept antibiotics at home, but only 17% would use them without a physician's consultation [24]. In our study we found that 4.1% of respondents from urban areas acquired their antibiotics from a pharmacy without a prescription, while as many as 23.7% of rural inhabitants did so (while in a Spanish

Table II. Patients' age and opinion about prescribing and effectiveness of antibiotic therapy

	Self-treatment with antibiotics n (%)	Treatment with antibiotics with GP's recommendation n (%)
Age [years]		
18-29	58 (35.6)	105 (64.4)
30-45	125 (49.0)	130 (51.0)
46-60	143 (45.4)	172 (54.6)
> 60	43 (27.2)	115 (72.8)
Does your family physician prescribe antibiotics...?		
When needed	243 (65.3)	442 (87.4)#
Too often	40 (10.8)	34 (6.7)*
Too seldom	42 (11.3)	20 (4.0)#
When asked	47 (12.6)	10 (2.0)#
Are antibiotics effective against flu and flu-like diseases?		
Yes	162 (43.9)	170 (32.6)**
No	125 (33.9)	203 (38.9)
I don't know/other	82 (22.2)	149 (28.5)
Are antibiotics effective against all infections?		
Yes	110 (29.8)	61 (11.7)#
No	154 (41.7)	277 (53.1)**
I don't know/other	105 (28.5)	184 (35.2)

*p < 0.05, **p < 0.001, #p < 0.0001

study, conducted in a general population, about 32.1% of participants did so) [25].

It should be emphasized that the respondents' knowledge about antibiotic therapy use was incomplete. Similarly, the results of a European survey [26] indicated that as many as 53% of respondents gave an incorrect answer to the question 'do antibiotics kill viruses?', and 47% of them expressed the opinion that antibiotics were effective against cold and flu. In our study, 43.9% of patients who used antibiotics without a physician's recommendation believed that antibiotics treated influenza and influenza-like infections. Data from our study and most other surveys indicate the need for conducting further studies in this field, as well as for educating patients about adverse effects and harmful consequences of inappropriately applied antimicrobial therapy.

In conclusion, many patients use antibiotic self-medication for RTI. This may be due to the common belief that antibiotics treat the majority of infections. A recommendation to either ask patients to return unused antibiotics to the physician's office or to dispense antibiotics in the exact amount which is necessary for an individual course, as well as the targeted education of pharmacy personnel and the general population, appear to be justified.

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