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Antibiotic therapy in children – Knowledge and behavior of parents

Antybiotykoterapia u dzieci – wiedza i postępowanie rodziców

Q1 Leszek Szenborn*, Patryk Maciąga, Anna Dul, Katarzyna Bortnowska, Jolanta Jasonek

Q2 Medical University Wroclaw, Poland

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ABSTRACT

Background: Both doctors overusing antibiotics and patients not adhering to the rational antibiotic therapy principles contribute to the problem of growing bacterial resistance. **Aim:** Verification of knowledge and behavior of parents in the antibiotic therapy in children. **Material and methods:** A questionnaire for parents of children from 2 months to 18 years conducted in nurseries, preschools and schools and completed on-line. **Results:** The analysis included 634 questionnaires (138 on-line). The 33.6% of respondents did not know the indications for antibiotic use. The 32% of respondents could not define the most common source of upper respiratory tract infections (URTI). Most parents declared high level of trust in doctors (67%) and 32% of respondents verify doctor's decision on the Internet. Most parents adhere to doctors' orders, but 9.7% of parents reported ceasing child's antibiotic therapy due to an early symptoms relief. The 14.3% of respondents at least once demanded application of antibiotic therapy for a child with a desired effect achieved in 77.8%. The 14% of respondents confirmed storing unused antibiotics at home and 4.6% of parents applied antibiotics without consulting a doctor. **Conclusions:** Parents either do not know or insufficiently understand the purpose of the use of antibiotics in the treatment of children's URTI. Parents trust in a doctor's decision concerning antibiotic therapy, but frequently consult the Internet. Doctors give in to parents' demands and prescribe antibiotics. Not respecting recommendations and antibiotics "self-treatment" are reprehensible. There is a need of educating parents and doctors in the reasonable use of antibiotics.

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Introduction

The majority of antibiotics used in health care (80%) are prescribed in primary health care settings, mostly in the

treatment of upper respiratory tract infections (URTI) [1]. Antibiotics are often prescribed incorrectly. These infections, most common in children, are generally of self-limiting viral etiologies. Presently almost every produced antibiotic has displays resistance [2]. General practitioners (GPs) prescribe

Q3 * Corresponding author at: Medical University Wroclaw, Paediatric Infectious Diseases, ul. Chalubinskiego 2-2a, 50-369 Wroclaw, Poland. E-mail address: szenborn@zak.am.wroc.pl (L. Szenborn).

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54% more antibiotics than pediatricians [3]. Wide spectrum antibiotics are abused in outpatient treatment [4]. The role of parents in strengthening incorrect practices and expectations is not sufficiently examined. Understanding the necessity for the cause of treatment and principles of antibiotic therapy can have a significant impact on reducing the use of antibiotics in URTI treatment. Abuse of antibiotics, especially in young children, besides the increase of resistance among microorganisms, may carry other consequences such as exposure to undesirable effects (diarrhea, rash, etc.), increased risk of asthma and other allergies [5–8], greater risk of obesity in the future [9], greater risk of developing inflammatory bowel disease [10], changes in intestinal microflora [9].

Aim

Parent's behavior and knowledge about antibiotic therapy in children and the degree of compliance examining.

Materials and methods

The study was conducted on 634 parents between December 2015 and January 2016. Participation in the study was anonymous. Diagnostic surveys and on-line forms were used. The research tool was an author's questionnaire. The questionnaire contained questions about:

- Parent's and child's age.
- Place of residence.
- Frequency of child's illness.
- Number of previous child's antibiotic therapies.
- Child's age of the first antibiotherapy.
- When the first antibiotic therapy was administered.
- Parent's knowledge about the most common source of URTI.
- Parent's knowledge about the purpose of antibiotic's.
- Parent's suggestions/request to get a prescription for antibiotic.
- Doctor's behavior in response to a request for antibiotic.
- Satisfaction with the visit ended without antibiotic prescription.
- Antibiotic treatment without clear indications.
- Adherence to the rules of dosage and time of antibiotic's administration.
- Storing antibiotics in a home medical kit.
- Antibiotic self-treatment.
- Using the Internet to check the validity of doctor's medical procedures.
- Trust to doctors in antibiotic treatment decision.

The collected material was subjected to statistically nonparametric analysis using Pearson's chi-square test, based on Statistica 10.0 software (StatSoft, Poland). The value indicating the presence of significant dependencies was assumed as $p < 0.05$.

Less than half of the respondents lived in middle-sized cities of 50–200k (45.8%), cities with less than 50 000 residents (32%) and 22.14% of surveyed lived in cities larger than 200 000.

Results

Knowledge about the causes of infections and the need for antibiotic treatment

The 66.4% respondents knew the purpose of using antibiotics (treatment of bacterial infections), 33.6% could not determine in which infections antibiotics should be used. Most frequently, the lack of knowledge was indicated by the respondents aged 26–30 years old (40%), the differences in age groups were not statistically significant. Most (68%) indicated viral infections as the most common cause of URTI. The age of the respondents did not affect knowledge of the purpose of antibiotics treatment or the etiology of URTI.

Morbidity of respiratory tract infection (RTI) and antibiotic treatment

Almost 1/3 of children (29%) suffer more than 3 times a year. The 8% of children are sick 7 or more times a year. Children under 6 years of age are significantly more often sick than over 6 year olds ($p < 0.05$). According to parents, 75% of children received the first antibiotic in the first 3 years of their life, including 27% of children during their first 12 months. The 18% of children take the antibiotic more than 3 times a year (Fig. 1).

Confidence and verification of the doctor's recommendations on the Internet

Confidence in doctors regarding antibiotic treatment was rated in a five-point scale. Most respondents (67%) had a high level of trust (grades 4 and 5). Low trust (grades 1 and 2) was declared by 16% of respondents. The analysis of residence and trust showed statistically significantly higher confidence (71%) in larger cities (>50 000 inhabitants) than in smaller centers ($p < 0.005$). The 32% of respondents admit that they use the Internet to check the relevance of the implementation of antibiotic therapy. It is done significantly more often by those with low (46.6%) than high confidence (24.5%) ($p < 0.001$). The knowledge of the purpose of antibiotic use was not related to the need of checking the doctor's decision on the Internet (Figs. 2–4).

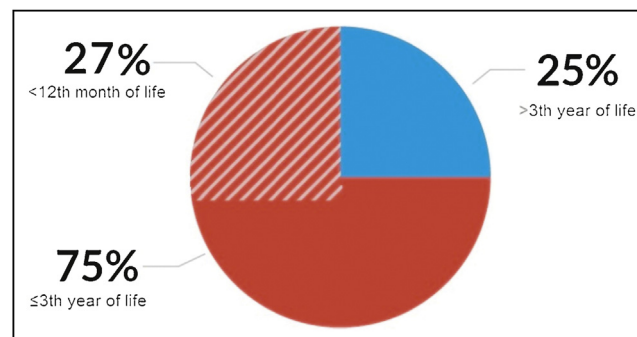


Fig. 1 – The age of first antibiotic therapy

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