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Adherence to acute otitis media treatment guidelines among primary health care providers in Israel



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ABSTRACT

Aims: To determine the appropriateness of the acute otitis media antibiotic treatment prescribed in the community in relation to the therapeutic guidelines.

Methods: Children aged 3 months–3 years diagnosed with simple uncomplicated acute otitis media in 6 community primary care clinics were enrolled. Data on the antibiotic treatment were collected using computerized medical files.

Results: 689 simple uncomplicated acute otitis media patients were enrolled; 597 (86.9%) were treated with antibiotics by 38 family medicine practitioners, 12 pediatricians and 7 general practitioners. 461 (77.2%) patients were <2 years of age. Amoxicillin was administered to 540 (90.5%) patients, with no differences between the various medical specialties. 127/540 (23.5%) patients did not receive the appropriate dosage; 140/413 (33.9%) patients treated with appropriate dosage did not receive the treatment for the appropriate duration of time. 258/357 (72.3%) evaluable patients <2 years of age received an antibiotic considered inappropriate to guidelines (38 not treated with amoxicillin, 94 received inappropriate dosage and 126 not treated for 10 days); 53/100 (53%) evaluable children >2 years of age received an inappropriate antibiotic treatment.

Conclusions: The majority of primary care physicians treat simple uncomplicated acute otitis media with the recommended antibiotic drug. However, incorrect dosage and shorter than recommended duration of therapy may jeopardize the quality of care in children with simple uncomplicated acute otitis media.

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Introduction

Acute otitis media (AOM) is the most frequent cause of visits to pediatricians in USA.¹ More than 50% of the children will have at least one episode of AOM by the age of one year

and more than 90% by the age of two years.^{2,3} The disease is most frequent between 6 and 13 months of age.⁴ The most frequent bacterial pathogens causing AOM are *Streptococcus pneumoniae* (40–45% of all culture-positive cases), non-typable *Haemophilus influenzae* (40–45%), *Streptococcus pyogenes* (1–5%) and *Moraxella catarrhalis* (1–5%).^{4,5}

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The published guidelines for the treatment of AOM recommend an antibiotic treatment chosen according to the suspected etiologic agent and its presumed susceptibility to antibiotics.⁶⁻⁸ These guidelines were endorsed by Israel in 2006 and 2010,^{9,10} recommending amoxicillin as first line treatment for AOM, in a dosage of 80–90 mg/kg/day and for a duration of 10 days in children <2 years of age and of 5–7 days in children >2 years of age without risk factors.^{7,8,11} When treatment failures occur, the second choice of antibiotics includes amoxicillin–clavulanate, cefuroxime axetil or intramuscular ceftriaxone.

The objectives of this study were to analyze the adherence to AOM treatment guidelines among primary health care providers in southern Israel, with particular emphasis on the prescribing patterns among various medical specialties and on the adherence to guideline recommendation in respect to the patient age.

Patients and methods

This was a descriptive prospective study, conducted from January 2003 through May 2004.

Setting

The study was conducted in six primary care pediatric clinics of “Clalit” Health Care Services (CHS) in the city of Beer-Sheva, southern Israel. CHS is the largest Health Maintenance Organization (HMO) in Israel, providing care to >50% of the population in Israel. All clinics recorded patient data on a computerized data system. All physicians participating in the study were employees of CHS and were trained by CHS and also at the department of pediatrics of Soroka University Medical Center, Beer-Sheva.

Definitions

AOM

Presence of acute symptoms and physical signs supporting the diagnosis of AOM.

Simple AOM (s-AOM)

<3 AOM episodes during the last six months or <4 episodes during last year and lack of antibiotic treatment for AOM or any other disease during the 72-h period before enrollment.

Complicated AOM

≥3 AOM episodes during the last six months or ≥4 episodes during last year and/or administration of an antibiotic treatment for AOM or any other disease during the 72-h period before enrollment.

Adequate dosage

medication dosage ranging from –30% to +30% of the recommended dosage of amoxicillin (80 mg/kg/day) according to guidelines.^{7,8}

Under-dosage

<70% of the recommended dosage of amoxicillin according to guidelines.

Appropriate duration of therapy

10 days of treatment for children <2 years and 5–7 days for patients >2 years.^{7,10,11}

Adherence to therapy

Treatment course in which all three criteria (antibiotic selected, adequate dosage and appropriate duration of therapy) were met.

Non-adherence to therapy

Treatment in which at least one of the three previous criteria was not met.

Study population

Inclusion criteria

All healthy infants and children living in the city of Beer Sheva aged three months to three years who: (1) were diagnosed with s-AOM by their primary care physicians in the clinics participating in the study and (2) were treated with antibiotics by their primary care physician.

Exclusion criteria

Complicated AOM or any other ear disease.

Variables

Independent – demographic data such as age, gender, weight, physician specialty, antibiotics prescribed. Dependent – adherence and non-adherence to the recommended guidelines.

Data collection

Data were collected by the principal investigator (NS) and research assistants by reviewing the computerized files system of CHS. The principal investigator or research assistants visited each clinic every 7–10 days and collected patient details within up to 10 days from patient's visit with an AOM diagnosis.

The following information was collected for all children diagnosed with s-AOM:

- Prescribed antibiotic selected, dosage and duration of therapy.
- Data on dosage were obtained either directly from the medical file or indirectly calculated by using information available on child's weight and number of antibiotic bottles prescribed.
- Treating physicians' training/specialty status (pediatrician specialist, pediatric resident, family medicine physician, general practitioner) and patient details (age, sex, weight).

The study was approved by the Ethics Committee of Soroka University Medical Center.

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