



Recurrent acute otitis media in infants: Analysis of risk factors



Mohamed Salah, Mosaad Abdel-Aziz*, Ahmed Al-Farok, Azzam Jebrini

Department of Otolaryngology, Faculty of Medicine, Cairo University, Egypt

ARTICLE INFO

Article history:

Received 13 July 2013

Accepted 20 July 2013

Available online 13 August 2013

Keywords:

Acute otitis media

Adenoid

Breastfeeding

Allergy

Upper respiratory infection

Infantile infection

ABSTRACT

Objective: Recurrence acute otitis media (RAOM) may cause a considerable morbidity and a great parental concern. The aim of this study was to analyze the risk factors that are likely to be responsible for RAOM in infants, and their impact on treatment failure.

Methods: A retrospective study on 340 infants with RAOM was conducted. Data were collected from hospital charts. A 10 days course of amoxicillin/clavulanate was used for treatment of recurrence, while surgical management in the form of adenoidectomy and/or myringotomy was reserved for patients with persistent disease. We analyzed various risk factors that may affect the prognosis of RAOM, including: age, prematurity, upper respiratory tract infections (URTI), duration of breastfeeding, use of pacifiers, parental smoking, seasonality, the presence of siblings (family size), gender, adenoid hypertrophy, allergy, and craniofacial abnormalities.

Results: Use of pacifiers, short duration of breastfeeding, older infantile age, winter season, URTI and presence of adenoid hypertrophy were identified as risk factors for RAOM. Treatment failure may be due to adenoid hypertrophy, short duration of breastfeeding and it is more common in older age infants. We did not find a significant association between RAOM and gender, prematurity, exposure to passive smoking, the presence of siblings, allergy, craniofacial abnormalities.

Conclusions: Factors that may cause recurrence of the disease in infant population are use of pacifiers, short duration of breastfeeding, older infantile age, winter season, upper respiratory tract infections and adenoid hypertrophy. Also, treatment failure may be caused by adenoid hypertrophy and short duration of breastfeeding. Good understanding of these factors may help to decrease the recurrence rate and to improve the treatment of the disease.

© 2013 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Acute otitis media (AOM) is one of the most common infections in children. It remains the leading cause of doctors' consultations by children and the most common reason for children to take antibiotics [1,2]. By the age of 2 years, 70% of all children have suffered at least one episode of AOM, and approximately 5–15% of children experience four or more episodes per year [3,4].

After an uncomplicated attack of AOM, the child may face the problem of recurrent episodes of AOM. If at least 3 episodes occur in 6 months, then the patient is said to experience recurrent acute otitis media (RAOM) [1,3]. Factors that may be responsible for recurrence of the disease include: an increase in using pacifiers, a decrease in duration of breastfeeding, upper respiratory tract infection (URTI), winter season, presence of obstructive adenoid, young age, prematurity, parental smoking, the presence of

siblings (family size), allergy, and craniofacial abnormalities [1,3,5–8].

Recurrent AOM may cause a considerable morbidity and a great parental concern with each attack. The disease may also cause long-term middle ear damage, endangering hearing. Furthermore, it can cause major complications such as mastoiditis and facial paralysis [9], thus reliable epidemiological data on etiology and management of AOM are important to make well-informed health policy decisions [2].

The aim of this study was to analyze the risk factors that are likely to be responsible for recurrent episodes of AOM in infants, and their impact on treatment failure.

2. Methods

A retrospective study was conducted. The data were acquired from patients' files of 666 AOM patients below the age of 2 years presented to the outpatient clinic of the Pediatric Otolaryngology Unit of Cairo University Hospital during the period from May 2011 to April 2012.

Only 400 cases were documented to have RAOM, we excluded 60 infants who have had the following criteria: infants who had

* Corresponding author at: 2 el-salam st., King Faisal, above el-baraka bank, Giza, Cairo, Egypt. Tel.: +20 1005140161; fax: +20 225329113.

E-mail address: mosabeez@yahoo.com (M. Abdel-Aziz).

URL: <http://www.ent.egypt.com>

previous chronic otitis media with effusion, infants of episodes less than 3 in 6 months, or who underwent tympanostomy tubes insertion, and infants who did not continue the follow up period for at least 6 months. Only 340 infants who fulfilled the study criteria were included in this work.

Data were collected from hospital charts. Medical history has been fulfilled by the parents including; number of attacks and their duration, symptoms of disease, previous medical treatment, family history of allergic rhinitis, and parental smoking.

Diagnosis was based on otoscopy (congested and/or bulging eardrum, or otorrhea) and presence of acute signs of infection (fever, pain, irritability), according to the guidelines of the Dutch College of General Practitioners [10]. Examination also included search for any possible risk factors as obstructive adenoid, allergy and any possible craniofacial abnormalities as cleft palate either overt or submucous type.

All infants were treated with antibiotics. A 10 days course of amoxicillin/clavulanate 90 mg/kg per day has been conducted [11]. The clinical outcome was evaluated after treatment, and every 4 weeks using otoscopy, tympanometry to detect middle ear effusion complicating the otitis media, and X-ray for detection of adenoid hypertrophy.

The antibiotic course has been repeated on recurrence of AOM, while surgical management in the form of adenoidectomy and/or myringotomy was reserved for patients with persistent disease despite antibiotic treatment.

We analyzed various risk factors that may affect the prognosis of RAOM, including: age, prematurity, URTI, the duration of breast-feeding, use of pacifiers, parental smoking, seasonality, the presence of siblings (family size), gender, presence of obstructive adenoid obliterating the choana, allergy, craniofacial abnormalities.

According to Monobe et al. [12], early recurrence was considered if the symptoms and signs of AOM reappeared within 1 month after an initial improvement. Treatment failure was considered when there was persistence or worsening of symptoms and signs of acute infection for up to 1 week following the initial treatment. And RAOM was defined as having three episodes or more within a period of 6 months.

2.1. Statistical analysis

Data was summarized using mean or median and standard deviation or percentiles for quantitative variables and frequency and percentage for qualitative variables. Comparison between groups was done using independent sample t test for quantitative variables, Chi square test or Fissure exact test for qualitative variables. Multivariate analysis was used for prediction of binary outcomes through logistic binary regression model. It had shown predictors of probability of treatment failure among the risk factors. Omnibus tests of model coefficients were done and X^2 , p value, and R^2 were detected. p values equal to or less than 0.05 were considered statistically significant.

All collected questionnaires were revised for completeness and consistency. Pre-coded data was entered on the computer using "Microsoft Office Excel Software" program (2010) for windows. Data was then transferred to the Statistical Package of Social Science Software program, version 15 (SPSS) to be statistically analyzed.

3. Results

Three hundred and forty infants with RAOM were enrolled in this study, data in hospital files were reviewed with special attention to the predisposing factors that may be responsible for recurrence of the disease (Table 1), number of episodes of AOM, treatment failure, and early recurrence.

Table 1
Descriptive statistics.

		Frequency (N = 340)	Percentage
Age	3–6 months	113	33.2
	6–24 months	227	66.8
Sex	Males	210	61.8
	Females	130	38.2
URTI		219	64.4
Breastfeeding	<3 months	80	23.5
	>3 months	260	76.5
Parental smoking		87	25.6
Use of Pacifier		73	21.5
Seasonality	Winter	218	64.1
	Others	122	35.9
Prematurity		62	18.2
Presence of siblings		213	62.6
Obstructive adenoid		58	17.1
Allergy		152	44.7
Craniofacial abnormalities		14	4.1

The age of the studied patients was ranged from 3 to 24 months. They were divided into two age groups, 3–6 months (113 infants = 33.2%) and 6–24 months (227 infants = 66.8%). The study included 210 males (61.8%) and 130 females (38.2%). Out of the 340 infants with RAOM, URTI was detected in 219 infants (64.4%). Infants' breastfed less than three months were 80 (23.5%), while infants' breastfed more than three months were 260 (76.5%). Parental smoking was discovered in 87 infants (25.6%). 73 infants (21.5%) were users of pacifier. 218 infants (64.1%) presented during winter season, while 122 (35.9%) presented in other seasons. Premature infants (less than 37 weeks) were 62 (18.2%). 213 infants (62.6%) belonged to families with more than one sibling. 58 infants (17.1%) presented with obstructive adenoid, and 152 infants (44.7%) showed positive family history of allergic rhinitis. Regarding the craniofacial abnormalities, overt cleft palate was detected in 6 infants (1.8%), and submucous cleft palate in 8 infants (2.3%).

All infants received medical treatment, 221 infants (65%) showed early recurrence of AOM, 91 patients (26.8%) showed treatment failure and they necessitated surgical intervention in the form of myringotomy and/or adenoidectomy. Seven patients with obstructive adenoidal hypertrophy had undergone adenoidectomy only, as they did not develop treatment failure.

There were 1777 episodes of AOM among the 340 infants during the follow up period, with a range of 3 to 10 and a mean of 5.23 episodes per patient. The relations between risk factors and the number of episodes of RAOM were studied (Fig. 1).

RAOM was proved to have statistical significant relationships with age, URTI, breastfeeding, use of pacifier, and obstructive adenoidal hypertrophy (with p value <0.001, =0.001, 0.005, 0.005, 0.001 respectively). Recurrence tended to be more in infants more than 6 months of age (mean \pm SD = 5.6 \pm 1.7) than in younger group (mean \pm SD = 4.6 \pm 1.3), more in infants presented with URTI (mean \pm SD = 5.8 \pm 1.8) than in others without URTI (mean \pm SD = 5.1 \pm 1.6). Also, the recurrence was more in infants with breastfed less than 3 months (mean \pm SD = 5.7 \pm 1.9) than in infants with breastfed more than 3 months (mean \pm SD = 5.1 \pm 1.6). Infants using pacifiers showed a high recurrence rate (mean \pm SD = 5.8 \pm 1.8) relative to infants who did not use pacifiers (mean \pm SD = 5.1 \pm 1.6). Infants with obstructive adenoid developed high recurrence (mean \pm SD = 6.5 \pm 1.9) in relation to infants without adenoid hypertrophy (mean \pm SD = 5.0 \pm 1.5).

The relationship between seasonality and RAOM was statistically significant (p value = 0.03), with more tendency for recurrence in winter season (mean \pm SD = 5.4 \pm 1.7) than in other seasons (mean \pm SD = 5.1 \pm 1.6).

Download English Version:

<https://daneshyari.com/en/article/4112876>

Download Persian Version:

<https://daneshyari.com/article/4112876>

[Daneshyari.com](https://daneshyari.com)