

SUMMARY

Introduction

The diagnosis of "acute otitis media" (AOM) is a concept that encompasses middle ear inflammation, regardless of etiology and pathogenesis, and is the most common bacterial infection in infants and children. An episode of AOM may progress without complications, with rapid resolution of symptoms or features of acute infection. However, most frequently the symptoms are gradually relieved, while middle ear effusion usually persists for several weeks after the onset of infection. The presence of middle ear fluid causes hearing loss, which may adversely affect the child's development and may contribute to recurrent otitis media. Long-term persistence of an effusion may lead to the formation of retraction pockets of the tympanic membrane, its perforation, damage to the ossicles, and even chronic otitis media. Risk factors for AOM are studied and well documented, but the research and literature on the persistence of middle ear effusion after AOM, in particular describing the differences in the course of this condition in countries with different levels of development and comparing the effect of specific treatment regimens on the duration of effusion persistence is still limited.

Objective of the study:

The main aim of the study was to evaluate the medical and socioeconomic factors conducive to the persistence of middle ear effusions after AOM in children. In order to achieve the main goal, the following specific goals were adopted:

1. Identification of selected factors, based on the history, course of the disease and treatment methods, that may affect the time of evacuation of the middle ear effusion.
2. Searching for differences between these factors depending on the patient's country of residence in Poland or in Ukraine.

Material and methods:

The study included 119 children with acute otitis media, including 51 children from Poland and 68 children from Ukraine. The average age of children from Poland was 4.7 years, and 4.9 years in the case of children from Ukraine. Each patient attended 4 visits: visit 1 (W1) (day 0), visit 2 (W2) (day 7-10), visit 3 (W3) (day 30-32), visit 4 (W4) (day 60-62). During each visit, the gathered data was evaluated by means of an in-house, self-developed questionnaire. Moreover during the visits W2, W3, and W4 tympanometry was performed. Further, the results of treatment in children from Poland and Ukraine were compared, and the influence of selected demographic, social and health factors on the achieved treatment effects was examined. The material was subject to statistical analysis.

Results:

Evacuation of effusion from the ear was found at visit 2 in 13%, at visit 3 in approximately 43% and at visit 4 in about 54% in the examined children. There was no case of exudate evacuation during the visit 2 in the Polish group, while in the Ukrainian group it was found in almost one fourth of the children. At visits 3 and 4 no differences were observed in the evacuation of exudate between the Polish and Ukrainian groups. The gender of the child did not influence the frequency of exudate evacuation at the last visit. Similarly, age was not a factor influencing the effects of treatment. In the Polish population, more children with complete exudate evacuation lived in cities, which was not the case in the Ukrainian population. Living in a single-family home was a factor which exerted a positive influence on the effects of the treatment among children from Poland, while among the Ukrainian group it was not relevant. The number of children in the family also influenced the effects of treatment in the group of children from Poland.

Children's stay in kindergarten or school positively influenced the effects of treatment under the condition that the groups at school or kindergarten were rather small. The family income had a significant impact on the treatment effects in both populations. Smoking in the child's room did not affect the effects of the treatment. Having individual heating at home was a factor that positively influenced the effects of treatment in both populations of children under examination. In the group of children from Poland, statistically significant differences in the effect of the duration of pregnancy were found. However, such a relationship was not found in the group of children from Ukraine. In the Ukrainian group, there was no correlation between the duration of breastfeeding and the treatment effects, while in the Polish group such a relationship was detected. In the group of children from Poland, exudate evacuation occurred to a much greater extent in children who had been vaccinated against pneumococci. In the group of children from Ukraine, this difference was not statistically significant. Unilateral AOM could be treated more easily than bilateral AOM. At visit 4, no statistically significant correlation was found between the use of ear drops and treatment effects (test probability value $p = 0.3172$). It was also found that the treatment with antibiotics and non-steroidal anti-inflammatory drugs (NSAIDs) did not have a statistically significant effect on the cure in the group of Ukrainian children. The use of pseudoephedrine in a group of Polish children did not affect the effects of treatment.

Conclusions:

1. The evacuation of exudate in the middle ear after acute inflammation is positively influenced by the child's residence in the city, living in a single-family home, smaller number of children in the family, the stay of children in kindergarten or school (but only in smaller groups), family income, individual heating of the apartment / house, occurrence of a unilateral AOM.

2. Persistence of exudate in the middle ear after its acute inflammation is adversely affected by the child's residence in the countryside, a greater number of children in the family, and the occurrence of bilateral AOM.

3. No influence of gender and age of the child, smoking in the child's room, treatment with ear drops, antibiotics and pseudoephedrine preparations on the persistence of middle ear exudate after AOM was observed.

4. In the Polish group, the urban residence, living in a single-family home, smaller number of children, staying in a kindergarten or school in relatively small groups, family income, pneumococcal vaccination and one-sidedness were favorable factors, while a shorter duration of pregnancy and breastfeeding and the shorter time between relapses was a factor that adversely affected the persistence of AOM exudate.