

Antibiotic therapy in the treatment of acute otitis media

*S. Cazacu¹, C. Georgescu², A-M. Pelin², L. Brunchi¹, P. Cazacu¹, L. Dodon¹

¹Department of Otorhinolaryngology, District Hospital of Orhei, the Republic of Moldova

²Department of Pharmacology, Dunarea de Jos University of Galati, Romania

*Corresponding author: cazacusimion@mail.ru. Received October 12, 2015; accepted December 07, 2015

Abstract

Background: Acute otitis media is an infection of abrupt onset that usually presents with ear pain. Worldwide acute otitis media affects about 8-11% of people a year. In acute otitis media, antibiotics may speed recovery but may result in side effects. Antibiotics are often recommended in those with severe disease or under two years old.

Material and methods: Our study included a retrospective analysis of 117 patients with acute otitis media, whose medical records were examined. The information was analyzed statistically.

Results: The results demonstrated an increased involvement of older people and women. The use of antibiotics to treat acute otitis media is determined by Cefazolin in 49-50% cases, Ceftriaxone - 49%, Cefotaxime - 48%, Cefoperazone - 14%, Amoxicillini+Clavulanic acid in 16% of cases. Antibiogram was released for 53 patients, and according to it: Cefazolin - 23%, Amoxicillini+Clavulanic acid - 15% and the rest were treated with cephalosporin third generation.

Conclusions: Depending on severity, the treatment requires the use of antibiotics with broad spectrum. Antibacterial therapy according to antibiogram is contemporary and has the advantage of assessing the appropriate antibiotic.

Key words: otitis media, antibiotics, cephalosporin generation.

Introduction

Acute otitis media represents the inflammation of the middle ear [3, 4]. The frequency of acute otitis media in people of any age and complications that follow it set them first in otorhinolaryngology practice [1, 6].

According to data from literature, about 8-11% of the population of the globe suffers from acute otitis media [4]. In Moldova the figure constitutes 8-10% with the upward trend in the mature population and children [1].

Acute inflammation of the middle ear with its clinical course manifests itself through otalgii, leaks from the middle ear, fever, illness severity and subsequently reveals complications, more often endocranian [11].

The treatment should be ample, appropriate, and lead to a cure both morphologically and functionally, without having to admit the evolution of acute otitis in a chronic form. The treatment is applied depending on the phase of the development of otitis [2, 5, 12, 13, 14, 16].

Material and methods

It was realized a retrospective statistical study for a period of 2 years in Otorhinolaryngology Department of Orhei Dis-

trict Hospital, which describes an incidence of about 60-70 patients per year interned in the hospital, about 10% of the total number of patients.

The study included 117 hospitalized patients with diagnosis of acute otitis media. They were treated empirically but also according to antibiogram. Data were collected from the patients' observational records and processed statistically.

Results and discussion

From the analysis of the data used in the study, it was observed that most affected by acute otitis are elderly people (mostly female), due to deficient immune system, and the children, aged 6-18 years. They are prone to fall sick because the body and the immune system are incompletely developed.

The empirical treatment is more often used in children aged up to 5 years and teenagers between the ages of 6 to 18 years, the underlying cause being limited possibilities to take ear secretion considering the age and the fear of the child. In adults and elderly it is easily carried out.

The majority of patients affected by acute otitis media present pathology of average gravity (48% - in 57 patients),

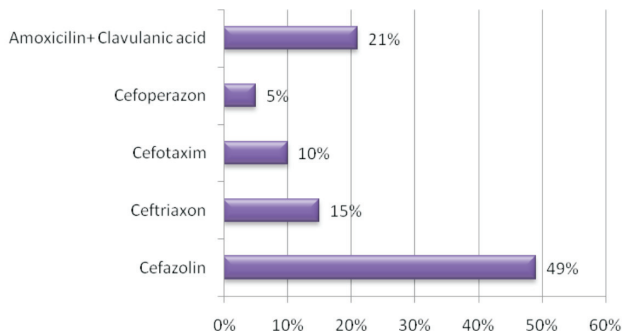


Fig. 1. Antibiotic therapy of light acute medium otitis.

which confirms the fact that people do not address the physician at the first symptoms of the disease, but they go to see the doctor when symptoms do not allow them to carry on activities normally, the rest of the patients have severe (17%) and mild (33%) forms.

There were 39 hospital patients with diagnosis of acute otitis media. Cefalosporin of generation I was the base antibiotic given to 19 patients (49%). Third generation of cephalosporins have been used less frequently, Ceftriaxone at 6 patients (15%), at 4 patients – Cefotaxim (10%), at 2 patients – Cefoperazon (5%), while Penicilin, Amoxicillin + Clavulanic Acid at 8 patients (21%) (fig. 1).

The antibiotic prevailing in the treatment of acute otitis media is the average form Ceftriaxone, 28 patients (47%) which is a semi-synthetic cephalosporin of the beta-lacto masses and is resistant to most beta-lacto masses. It is used widely in the treatment of otitis due to long half-life which makes it very convenient treatment, the patient is administered a single daily dose. With almost equal frequency we returned Cephalozolin to 8 patients (14%), Cefoperazon to 9 patients (16%) and Cefotaxim to 11 patients (19%) (fig. 2).

The least used was Amoxicillin + Clavulanic, 2 patients (4%), most likely due to the presence of amoxicillin in almost all kinds of meat on the market, and its effect could be significantly diminished.

16 patients (81%) were treated with generation III Cephalosporins, predominantly Cefotaxim – 9 patients (48%), ceftriaxone – 4 patients (19%) and Cefoperazon – 3 patients (14%). Of all the 20 patients hospitalized with diagnosis of acute otitis media only 4 patients received Cefazolin (19%) (fig. 3).

According to the severity of patients' pathologies, 51 (44%) were hospitalized for less than 6 days, 46 patients (39%) were placed for 7 days, and 20 patients (17%) – more than 7 days.

Hospital patients for less than 6 days are considered those with light and medium otitis media. In this case the treatment was performed according to antibiogram. Prescribed treatment without enterotoxin was administered: Cefazolin to 25 patients (50%), Cefoperazon to 2 patients (4%), Cefotaxim to 6 patients (12%), Amoxicillin + Clavulanic Acid – 8 patients (15%) and Ceftriaxon to 10 patients (19%) (fig. 4).

In this case, for hospital patients of 7 day staying Ceftriaxon has been recommended for 22 patients (48%). For 11 patients (24%) was administered Cefazolin, but Penicilin for 2 patients (4%) (fig. 5).

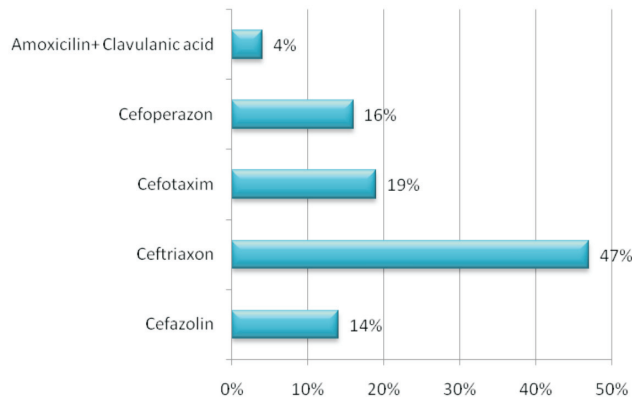


Fig. 2. Antibiotic therapy of moderate otitis media.

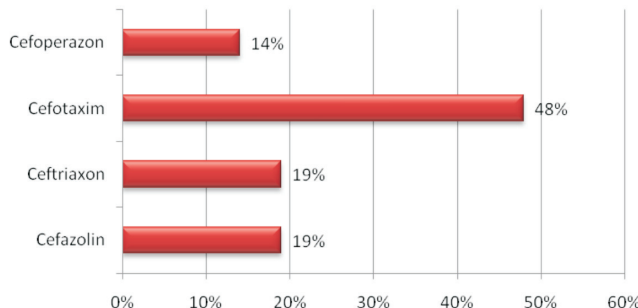


Fig. 3. Therapy with antibiotics of severely acute moderate otitis media.

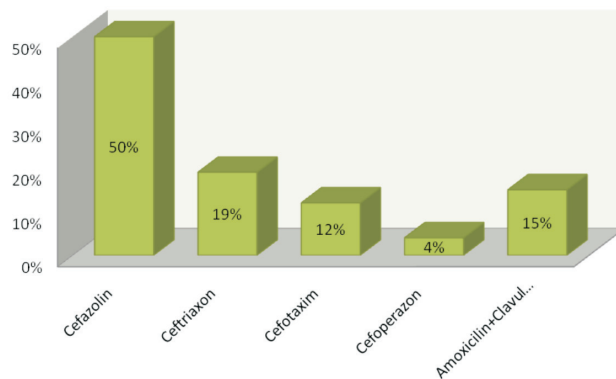


Fig. 4. In-patient therapy with antibiotics for less than 6 days.

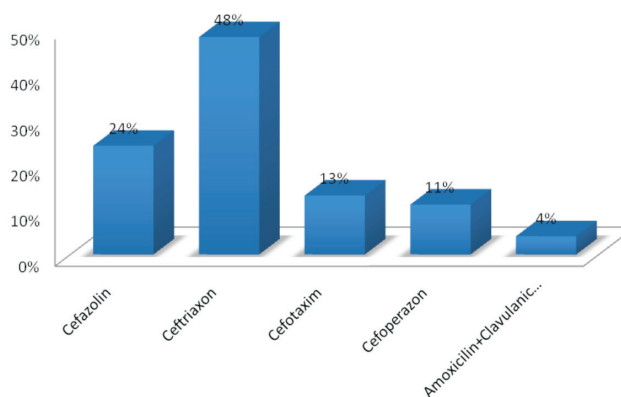


Fig. 5. Therapy with antibiotics at the patients that were hospitalized for more than 7 days.

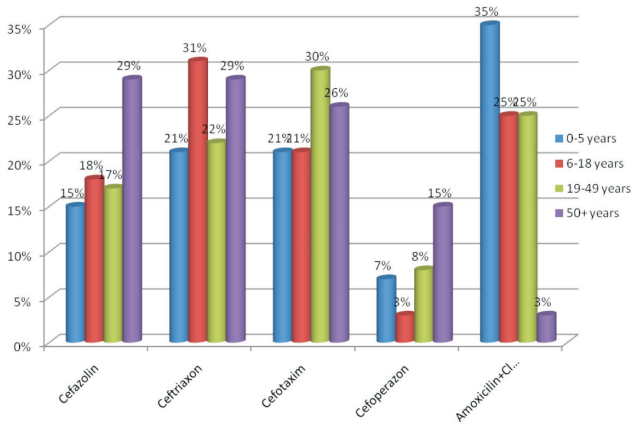


Fig. 6. Therapy with antibiotics classified by age.

For all the studied patients prevailed Cephalosporins. Cefazolin was used by 15-30% more in the elderly patients, but ceftriaxon was administered with a frequency of 21-31%. A similar percentage has Cefotaxim only with a minimum insignificant difference. Amoxicillin+Clavulanic Acid prevails in the treatment of children in 35%, due to the slight possibility of being used in the treatment of acute otitis media, it is also used in the form of syrup or suspension (fig. 6).

14 patients (26%) of all for whom antibiogram was carried out were elected to use Ceftriaxon, Cefotaxim was prescribed for 11 patients (21%) and Cefazolin – slightly more used. Cefoperazon and Amoxicillin + Clavulanic acid have an equal percentage (as there were 8 patients) (fig. 7).

According to literature, Cephalosporin has the best therapeutic effect in the treatment of acute otitis media [5, 7, 8]. This scheme of antibiotic therapy in acute otitis media is well tolerated by patients and has a maximum effect for treating patients [5, 7].

Pharmacological data in our study demonstrated that Ceftriaxon, Cefazolin and Cefotaxim showed superior efficacy in most cases, irrespective of the studied aspects depending on age, gender, or duration of treatment [5, 7, 8].

Conclusions

1. The use of antibiotics in the treatment of acute otitis media is determined by exposed and visible effects in the analysis with high efficacy: Cefazolin – 49-50%; Ceftriaxon – 49%; Cefotaxim – 48%; Cefoperazon – 14%; Amoxicillin + Clavulanic Acid – 16%.

2. With the degree of advancement of the severity of otitis media it is required to use antibiotics with a broad spectrum of action.

3. Antibiogram was performed in 53 patients, for 23% of them were prescribed Cefazolin – a broad-spectrum genera-

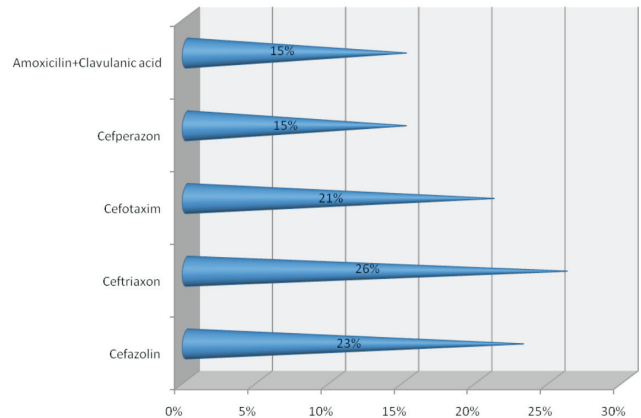


Fig. 7. Therapy with antibiotics after antibiogram.

tion I cephalosporin, in 15% – Amoxicillin + Clavulanic Acid and in the most cases (62%) were administered generation III Cephalosporins: Cefotaxim, Ceftriaxon and Cefoperazon.

4. Antibacterial treatment according to antibiogram is contemporary and it has the advantage of assessing the right antibiotic.

References

1. Ababii I, Maniuc M, Erencov V. Terapia medicamentoasă în otorinolaringologia pediatrică. Chisinau, 2004;78-142.
2. Angelescu M. Ghid practic de antibioticoterapie. București: Editura Medicală, 1988.
3. Ababii I, Popa V, Antohii I, et al. Otorinolaringologie. Chișinău: Centrul Editorial-Poligrafic Medicina al USMF, 2000;146-200.
4. Ababii I, Popa V. Otorinolaringologie pentru medici de familie. Chișinău, 2002;199-207.
5. Cristea AN. Tratat de Farmacologie. București: Editura Medicală, 2013;1:955.
6. Chalmers D, Stewart I, Silva P, et al. Otitis Media With Effusion In Children - The Dunedin Study. Philadelphia: Blackwell Scientific Publications Ltd, J.B. Lippincott Co, 1989;140-146.
7. Ghicavii V, Bacinschi N, Gusuilă G. Farmacologie. Chisinau, 2010;2:769-773.
8. Hațeganu E, Dumitrescu D, Stecoza C. Chimie farmaceutică. București: Editura Medicală, 2006;1:7-17.
9. Frantsuzov BL, Frantsuzov CB. Terapia afecțiunilor urechii, nasului, gâtului. Zdroviye. 1988;20-22.
10. Matcovschi C, Procopisin V, Parii B. Medicamente omologate în Republica Moldova. Chișinău: Firma Editorial-Poligrafică Tipografia centrală, 1999;593.
11. Popa V, Andriuta V, Hodonoaga N. Ghid Otorinolaringologic. Chisinau: Editura Medicina, 1990;271.
12. Palchiun VT, Luchin LA. Terapia antibacteriană în practica otorinolaringologică. M.: Medicina, 1990;31.
13. Preobrajenschi BS, Temchin IS, Lihacev AG. Afecțiunile urechii, nas, gât. M.: Medicina, 1986;136.
14. Sevrighin BV. Otorinolaringologia pediatrică. M.: Medicina, 1991;146.
15. Sinev N, Gurevici II. Îndrumar pentru farmaciști. M.: Medicina, 1982;188.
16. Undrits VF, Hilov CL, Lozanov NN, et al. Afecțiunile urechii medii. M.: Medicina, 1960;163.