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WATCHFUL WAITING PROTOCOL FOR ACUTE OTITIS MEDIA IN CHILDREN, CHECKING PRACTICALITY

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ABSTRACT

Acute otitis media is one of the most common infections in children and one of the leading causes of prescribing antibiotics, which have consequences for children's health, increase the risk of bacterial resistance to antibiotics, and impose economic costs on the health system. A starting non-severe acute otitis media episode may resolve without antibiotics. There are protocols for this approach of treatment, these protocols are adopted by many practitioners in many hospitals, including my own. This study is a retrospective collection and analysis of data for children who underwent the no-antibiotics (watchful waiting) policy, to try to determine the efficacy of this approach in everyday practice in the local region. After analyzing the data, there was a percentage of 62% of children whose infection was resolved and who did not need any antibiotic treatment, showing significant reliability. There is a need for more work to improve the selection criteria in order to raise that percentage for better practicality.

KEYWORDS: Watchful Waiting, Selection Citeria, Clinical Protocols, Healthcare Costs.

INTRODUCTION

Acute otitis media is the most common infection in children aged 2 to 5, and a leading cause for antibiotics prescription, it is also an infection that can lead to serious complications, both ear complications and intracranial complications.

It has an economic impact on the health system; for example, the yearly cost of treatment is approximately 5 billion in the United States.[1]

It is well known that some of the non-severe starting middle ear infection could resolve spontaneously without the need for antibiocs therapy.[2]

Avoiding unnecissary antibiotics prescription will spare the child any side effects of the treatment, help to preserve the intestinal flora, and reduce the possibility of future resistance to antibiotics.

There have been many attempts to develop protocols with selective criteria to try to select cases that need antibiotics from cases that could benefit from observation[3], in the hope of spontaneous resolution of the infection.

Yet before adopting any of these protocols, we need to determine the level of success we could achieve in real-life everyday practice within the local community and ensure that it is comparable to the success rate mentioned in these studies, while also checking whether there is any increase in complications over the expected ratio known for acute otitis media; these are the two questions this study hopes to answer.

Adopting this strategy (if successful), could have significant positive potential for the health of children and reduce the burden on the health system.

METHOD

The study is a retrospective review of children who visited my private practice in Tartous/Syria, during a period extending from June 2011 to December 2014, the children were examined either in the ENT clinic or in the pediatrics clinic and diagnosed with acute otitis media.

All the children met the widely known criteria for the diagnosis of acute otitis media: otalgia, hearing loss, fever, as well as examination signs, including a congestive tympanic membrane, thickened TM, disappearance of the light reflex, and retrotympanic effusion.[4]

Children with severe symptoms, such as severe pain or very high fever, were an obvious need of not delaying antibiotic do not present in the sample. Also, children with ear otoscopy showing severe bulging or ear discharge, as these symptoms and signs indicate advanced infection rather than a starting one, and were treated with antibiotics without waiting.

Before collecting and analyzing the data, the plan was presented to the local health authority and was approved. As this is aretrospective anaylsis for patients already been treated following the updated guidelines for treating middle ear infections[5], the study is fully anonymous; names were replaced with codes.

These are the criteria used to select children for watchful waiting.[6]
1 - Confirmed acute non-severe otitis media.
2 - Children aged 2 to 13 years;children younger than 2 years were excluded because they have different pathogenics[7], which could result in a different evolution of the infection.
3- No immunodeficiency and no craniofacial malformation.
4- Symptoms started less than 48hours
5- Parents are reliable to follow up in the clinic within 48h.

Children were followed up after 2 days, interrogated about the relief of symptoms, and examined for resolution of the signs of infection, data were collected from the 1st consultation, and the 2nd 48 hours later consultation.

Children with complete recovery mark response (r), others with persistent symptoms and signs mark fail (f) and started on antibiotic therapy started right away.

Data for a total number of 213 children were collected.

Data were also collected for children who developed a complication by the first follow-up appointment.

Data were statistically analyzed using an online program, Stasisty, the program calculated and provided percentages, the mean, the deviation, and the distribution of the main variant (the response/fail), the distribution was calculated using the Chi^2 method. The significance level was set at $p < 0.05$.

RESULTS

Age and sex, here was no significant sex preponderance. The mean age of the patients was 4.68y/owith a 2.59 Std. deviation, an expected result, as it is known that the age group most affected by acute otitis media is 2 to 5years old, and the study has excluded children below 2.
Diagram 1: Showing The Age Distribution.

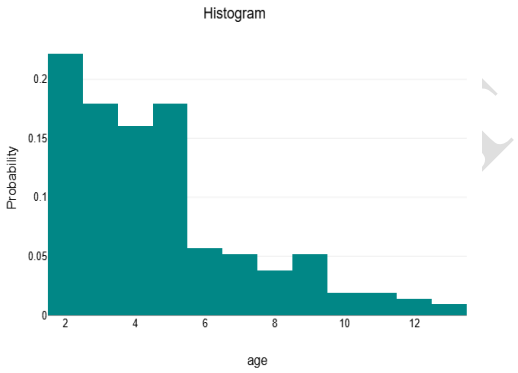

Diagram 1: age distribution.

Succses/ failure,
The percentage of children who had their infection resolved by the end of the 48 hours waiting was 62.74% (Diagram 2: success rate), A Chi^2 distribution test was calculated to check whether the expressions of the variable response correspond to the expected distribution. The result is $\chi^2(1) = 39.49$, p = <.001,(table 1).

Table 1: p value.

	response
Chi^2	39.49
df	1
p Value	<.001

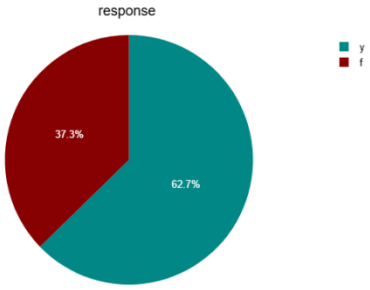

Diagram 2: success rate.

Finaly there was one case only that developed a complication, making it 0.47% of the whole sample.

DISSCUSION

The age group of children with acute otitis media was mainly between 2 and 5 years old, as these are the years

when acute otitis media is the most frequent infection. It started to decline with growing in age.

Children younger than 2 years old were excluded because ear infections in this age group are usually caused by groups of microps different of the microbes in the sample group.

Only one case of mastoiditis was reported in the whole studied group; this falls within the expected percentage of otitis media complications[8], meaning that the watchful waiting policy did not result in an increase in acute otitis media complications.

Roughly two thirds of the infections resolved in 48h without the need for antibiotics, which is a significant number of children who proved not to need antibiotics. This has an impact on reducing antibiotic resistance, not exposing children to the side effects of the drugs, and reducing the economic burden on the health system.

Nevertheless, the percentage of children that needed antibiotcs afterall is over 30%, which remains relatively high. That brings the following downsides to the process:

I- The absolute need for the child and his parents to follow up in 2 days: although all cases of acute otitis media need to be followed, the necessity of coming back to the clinic is greater when no antibiotics have been prescribed.

II- The possibility that withholding antibiotic treatment for 2 days could have increased the length of illness or the severity of the symptoms in the nonresponsive group (needs to be investigated in another study).

At the end, it seems like the policy works to some level; the benefits we get from avoiding unnessicary antibiotics prescription clearly outweigh the downsides.

CONCLUSION

A 48 hours of watchful waiting without an antibiotic prescription is a valid technique that results in sparing two-thirds of the patients unnecessary antibiotic treatment and should be used whenever possible.

The selection criteria are very important to ensure the safety of the technique, making sure not to delay treatment for children who are prone to develop complications. The treating doctor should use his own judgment to foresee whether the parents will follow up in 2 days or not, in case of doubt, it is better to prescribe antibiotics and be on the safe side.

Need for studies to try to improve the selection criteria in order to reduce the percentage of non-responders.

Need for studies to compare the length of treatment and the severity of symptoms in the non-responders with a group treated with antibiotics from the first appointment.

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