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CHARACTERISTICS OF EPIDEMIOLOGICAL AND CLINICAL DATA OF THE COURSE OF ACUTE TONSYLLOPHARYNGITIS IN CHILDREN DEPENDING ON DIFFERENT ETIOLOGICAL FACTORS

Abstract.
The article reveals the issues of etiological diagnosis of acute tonsillopharyngitis in children based on the study of clinical and anamnestic features of this disease.

Keywords: *acute non-streptococcal and streptococcal tonsillopharyngitis, children, clinical features.*

Tonsillopharyngitis is a common upper respiratory tract infection in children, associated mainly with viruses, manifested as acute inflammation of the tonsils and pharynx. Bacteria are also responsible for the condition, with Streptococcus pyogenes, also known as group A beta-hemolytic streptococcus (GABHS), being the most important bacterial cause [1]. In a meta-analysis of studies involving children with sore throat, the overall prevalence of GABHS was 37% and 24% among children of different ages and in children younger than 5 years, respectively [2]. As one of the main reasons for seeking medical attention worldwide, GABHS tonsillopharyngitis affects about 450 million children each year [3-4]. The pediatric population accounts for almost half of all cases, most of which are at the age of 5–15 years (30–37%), and the rest (5–10%) - up to 5 years [5].

The reason why GABHS tonsillopharyngitis is so important is that it can lead to complications such as acute rheumatic fever (ARA), peritonsillar abscess and poststreptococcal glomerulonephritis. The prevalence of ARA worldwide ranges from 9.5-18 / 100,000 to 80-508 / 100,000 [6]. Given that ARA can be prevented with proper treatment, it is one of the reasons why many physicians prefer antibiotics for tonsillopharyngitis. However, the current increase in antibiotic resistance has led to the need to limit the use of antibiotics. An important difference here is the cause of tonsillopharyngitis [7].

In the vast majority of cases, acute tonsillitis is a self-resolving disease that is more often caused by a viral infection, and most patients do not need to take antibiotics. Antimicrobial therapy is required only for tonsillopharyngitis caused by beta-hemolytic group A streptococcus due to the possible risk of developing acute rheumatic fever or glomerulonephritis [8]. According to the European Society for Clinical Affairs, BGSA is the most common bacterial pathogen of tonsillitis and is isolated in only about 20% of cases [9].

Unfortunately, it is partly impossible to distinguish between viral and bacterial etiology of the disease only on clinical grounds [10], which leads to unjustified prescribing of antibiotics, which is associated with an increase in resistance of microorganisms [11]. In Europe, 25,000 patients die each year from antibiotic-resistant infections, with an estimated cost of 1.5 billion euros [12].

Given the urgency of the problem of irrational use of antibacterial drugs, today, the priority is to study the features of the ATP, which would distinguish between non-streptococcal and streptococcal nature of the disease.

The aim of the study. Evaluate epidemiological and clinical data on the course of acute tonsillopharyngitis in children with different etiological factors to optimize treatment.

Materials and methods. To achieve this goal, 102 children with a diagnosis of acute tonsillopharyngitis were examined, who were hospitalized in the boxed department of drip infections of the Regional Children's Clinical. From this cohort of patients, depending on the obtained results of cultures from the tonsillar surface to beta-hemolytic streptococcus group B, II clinical groups were formed. The first (I) of them was formed by 68 patients with non-streptococcal acute tonsillopharyngitis (nATP), and the second (II) was formed by 34 children with positive seeding on BGSA - a group with streptococcal acute tonsillopharyngitis (sATP). The mean age of patients in both groups was 8.63 ± 0.49 (95% CI: 7.65-9.61) years. The share of boys among patients of clinical group I was 52.2%, among children of group II - 38.2% (P> 0.05). The main clinical characteristics of the group were comparable.

At hospitalization of children to a hospital the anamnesis collection and clinical inspection on the scale developed by us which provided an assessment of expressiveness of clinical symptoms in points from 0 to 4 (0 points - no symptom, 1 point - moderate manifestations, 2 points - average, 3 points - expressed), 4 points - significantly pronounced signs). This scale included complaints, objective examination data, local changes in the tonsils, and the condition of regional lymph nodes, which were assessed daily during treatment.

The research was carried out in accordance with the principles of the Declaration of Helsinki. Parents or

guardians received informed consent to conduct the research.

Results and discussion. Analyzing the results of anamnestic data, it was found that a burdened epidemiological history in the form of contact with patients with acute tonsillitis in the first clinical group occurred in 25.0 ± 5.25% of children, and in the second group - in 16.8±6.41% of cases (P>0.05). It was noted that the predisposition to recurrent acute tonsillopharyngitis in the parents of children of the first clinical group on the part of the mother occurred in 28.6 ± 5.48% of cases, on the part of the father - in 9.1 ± 3.49% of cases. Among the group of children with streptococcal ATP, such indications occurred in 27.6 ±7.67% and in 13.8 ± 5.91% of cases (P>0.05).

During the last two years of follow-up, the annual incidence of SARS and tonsillopharyngitis did not differ significantly in the comparison groups. Thus, in patients with non-streptococcal ATP, the frequency of SARS more than 4 times a year occurred in 60.0±5.94% of cases, and the frequency of ATP more than 3 episodes per year - in 16.0 ±4.45% of cases. Among children with streptococcal ATP, the incidence of these diseases was 48.4 ± 8.57% and 19.4 ± 6.78%, respectively (P> 0.05).

The average frequency of ATP per year in the first clinical group was 3.2 ± 0.49 (95% CI 2.2-4.2) cases, and in the second clinical group - 3.5 ± 0.53 (95% CI 2) (P> 0.05) case. In the I clinical group the share of children who suffered from ATP 1-2 times a year reached 20 (47.6 ± 6.06%), 3-5 times a year ATP affected 16 children (38.1 ± 5.89) %) and more than 5 times a year ATP occurred in 6 patients (14.3 ± 4.25%). In the comparison group, the number of patients with the corresponding annual frequency of ATP was 16 (55.2 ± 8.53%), 7 (24.1 ± 7.33%) and 6 (20.7 ± 6.95%), respectively. 0.05). The average annual incidence of SARS in these groups was 4.04 ± 0.2 (95% CI 2.6-3.4) and 3.7 ± 0.25 (95% CI 3.2-4.2) cases, respectively (P> 0.05).

In 44 (84.6 ± 4.38%) representatives of the I clinical group and 22 patients (75.9 ± 7.33%) of the sATP group there was no seasonality of episodes of acute tonsillopharyngitis (P> 0.05). In other children, ATP occurred in the cold season. Due to repeated episodes of ATP, 11 children (32.3 ± 5.67%) in the nATP group and only 1 child (8.3 ± 4.73%) of the II clinical group were registered with an otorhynolaryngologist (P> 0.05). The diagnosis of "chronic tonsillitis" was verified in 9 children (17.3 ± 4.59%) in group I and in 3 patients (10.3 ± 5.21%) in group II (P> 0.05). Chronic adenoiditis in the first clinical group occurred in 3 children (5.8 ± 2.83%), and in the second group - only in 1 child (3.4%) (P> 0.05). Tonsillotomy was performed in group I of 2 children (3.0%) and 3 patients (9.7 ± 5.08%) in group II (P> 0.05). The corresponding number of children who underwent adenotomy was 7.5 ± 3.19% and 16.1 ± 6.30% of cases (P> 0.05).

From the anamnesis it is known that in group I in 20 children (40.8 ± 5.96%) non-streptococcal tonsillopharyngitis occurred for the first time. However, in 10 patients (20.4 ± 4.89%) the last episode of ATP occurred 1 month before the actual disease, 3-6 months ago ATP occurred in 12 patients (24.5 ± 5.22%) and more 6 months ago - in 7 patients (14.3 ± 4.25%). In the comparison group, only 10 children developed ATP for the first time (34.5 ± 8.15%), a month before this disease ATP occurred in 7 patients (24.1 ± 7.33%), for 3-6 months - in 4 patients (13.8 ± 5.92%) and more than 6 months ago ATP was detected in 8 children (27.6 ± 7.67%) (in all cases P> 0.05).

Upon admission to the hospital and during treatment, the clinical symptoms of acute tonsillopharyngitis in children of the comparison groups were evaluated according to the scale developed by us. The overall assessment of clinical symptoms of ATP when admission to the hospital less than 45.0 points indicated a non-streptococcal etiology of the disease with a sensitivity of 56.7% (95% CI 46.4-66.6) and specificity - 45.5% (95% CI 35, 5-55.8).

Assessing the hyperthermic reaction in children of the comparison groups, it was found that in favor of the non-streptococcal ATP showed the presence of a child's subfebrile body temperature with a specificity of 93.9% (95% CI 87.2-97.7), sensitivity 20.9% (95% CI) 13.4-30.2), while the post-test probability of a positive result increased by 27.4%, although higher fever figures reduced the post-test probability with a negative nATP result by only 4.3%.

It should be noted that the absence of symptoms of intoxication syndrome in children with a high degree of specificity - 91.4% confirms the non-streptococcal etiology of the disease. At the same time, this test in the vast majority of cases is accompanied by false-negative results - 96%.

It is believed that the presence of cough in patients with ATP is usually associated with non-streptococcal etiology of the disease. In our study, the absence of cough was in favor of non-streptococcal ATP with a sensitivity of 35.3% (95% CI 26.0-45.5), specificity - 76.5% (95% CI 67.0-84.4), a positive predictable value - 60.0% (95% CI 46.4-72.6), negative predictability - 54.2% (95% CI 45.6-62.6). The presence of such a symptom as the absence of cough increased the probability of non-streptococcal nature of ATP by 10.0%, and its absence reduced the risk of non-streptococcal etiology of the disease by only 4.2%.

Examination of the oropharynx in patients with non-streptococcal ATP showed a clear tendency to less pronounced hyperemia of the tonsils. Thus, the exudative component of tonsillitis, estimated at less than 3 points, indicated the presence of a non-streptococcal ATP in a child with a sensitivity of 42.4% (95% CI 32.5-51.7), specificity - 69.7% (95%) CI 59.7-78.5), the estimated value with a positive result - 58.3% (95% CI 46.1-65.8) and a negative result - 54.8% (95% CI 45.7-63.6).

These data suggest that the indicators of local inflammation and clinical manifestations of the general inflammatory reaction were slightly less pronounced in patients with non-streptococcal ATP. However, none of these markers of acute tonsillopharyngitis had both sufficient sensitivity and specificity for the probable separation of non-streptococcal ATP from streptococcal inflammation of the tonsils and pharynx.

Conclusions.

1. The results of clinical, epidemiological and anamnestic examination of children in the comparison groups allowed us to assume that the epidemiological data, medical history, in the examined patients did not differ significantly.

2. In the onset of the disease, in general, the severity of clinical manifestations of acute tonsillopharyngitis in patients of the comparison group did not differ significantly. However, in favor of non-streptococcal ATP with high specificity (93.9%) but low sensitivity (20.9%) showed the presence of subfebrile body temperature and less pronounced swelling and stratification on the tonsils (specificity - 69.7%).

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