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ANTIBACTERIAL THERAPY IN CHILDREN WITH OBSTRUCTIVE LARYNGITIS

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ОБСТРУКТИВ ЛАРИНГИТИ БЎЛГАН БОЛАЛАРДА АНТИБАКТЕРИАЛ ТЕРАПИЯ

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АНТИБАКТЕРИАЛЬНАЯ ТЕРАПИЯ У ДЕТЕЙ С ОБСТРУКТИВНЫМ ЛАРИНГИТОМ

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Резюме. *Ушбу мақолада 2018-йилдан 2020-йилгача бўлган даврда Тошкент шаҳар 3-сон шаҳар клиник юқумли касалликлар шифохонасига обструктив ларингит ташхиси билан ётқизилган 3 ойликдан 5 ёшгача бўлган 163 нафар боланинг касаллик тарихлари ретроспектив таҳлил қилинган. Тадқиқотнинг мақсади болаларда обструктив ларингитни (круп) даволашда антибактериал терапияни қўллаш самарадорлигини ўрганишдан иборат. Антибактериал терапиянинг самарадорлиги касалликнинг клиник белгиларининг йўқолиш муддатлари билан баҳоланди: тана ҳароратининг меъёрлашиши, интоксикация белгиларининг йўқолиши, нафас қисилиши, йўтал, овознинг тикланиши, стационар даволанишнинг давомийлиги. Тадқиқот натижалари антибактериал терапияни тайинлаш учун кўрсатмаларни аниқлашга имкон берди. Бактериал яллигланишнинг лаборатория ва клиник белгилари мавжуд бўлганда, II ва III даражали стенози бўлган крупли болаларда обструктив ларингитни даволашда антибиотикларни қўллаш кўрсатилган.*

Калит сўзлар: *болалар, обструкция, ларингит, антибиотикотерапия.*

Abstract. *This article presents a retrospective analysis of the medical records of 163 children aged 3 months to 5 years admitted to the Tashkent City Clinical Infectious Diseases Hospital No. 3 from 2018 to 2020 with a diagnosis of obstructive laryngitis. The aim of the study was to investigate the efficacy of antibiotic therapy in the treatment of obstructive laryngitis (croup) in children. The effectiveness of antibacterial therapy was evaluated by the time of disappearance of clinical symptoms of the disease: normalization of body temperature, disappearance of symptoms of intoxication, dyspnea, cough, voice recovery, duration of hospital treatment.The aim of the study was to investigate the effectiveness of antibacterial therapy in the treatment of obstructive laryngitis (croup) in children. The results of the study made it possible to determine the indications for the prescription of antibacterial therapy. Inclusion of antibiotics in the therapy of obstructive laryngitis is indicated in children with croup with II and III degree of stenosis in the presence of laboratory and clinical signs of bacterial inflammation.*

Key words: *children, obstruction, laryngitis, antibiotic therapy.*

Relevance. Despite advances in the prevention of infectious diseases, their prevalence remains high, especially among young children. This primarily concerns infectious and inflammatory diseases of the upper respiratory tract, which account for over 90% of all infectious pathologies in childhood [6, 8].

Frequent acute respiratory viral infections (ARVI) contribute to the development of chronic bronchopulmonary pathology, chronic sinusitis, tonsillitis, otitis, and often lead to allergic conditions, making ARVI the most pressing issue in pediatrics. The majority of diagnostic and therapeutic errors in pediatrics are associated with ARVI. It is well-established that ARVI in children typically manifest as rhinitis, catarrhal forms of nasopharyngitis, laryngitis, bronchitis, or tracheitis caused by viruses, for which antibiotic therapy is not indicated. Antimicrobial therapy is not necessary for children with infections caused by respiratory syncytial viruses, influenza viruses, parainfluenza, adenoviruses, etc. However, in practice, antibiotics are often used unjustifiably for these conditions [3, 7]. The prescription of antibacterial drugs for infectious and inflammatory diseases of the upper respiratory tract of viral etiology is

frequently justified by the need to prevent bacterial complications. However, according to one of the leading Russian pediatricians, Professor V.K. Tatochenko, ..."prevention of bacterial complications with antibiotics, which is sometimes used to justify their unwarranted use in ARVI, is ineffective. Moreover, by suppressing the growth of sensitive microflora, they pave the way for colonization of the respiratory tract by resistant flora, increasing the frequency of complications such as otitis and pneumonia by 2.5 times". According to V.K. Tatochenko, antibacterial therapy is required in only 6-8% of ARVI cases in children that are accompanied by bacterial complications [4, 5].

Purpose of the study: To evaluate the effectiveness of antibacterial therapy in treating obstructive laryngitis (croup) in children.

The objective of this study was to assess the effectiveness of antibacterial therapy in treating obstructive laryngitis (croup) in children, with the aim of optimizing croup treatment, considering that viruses also play a leading role in its etiology.

Materials and methods. We conducted a retrospective analysis of medical records of 163 children aged 3 months to 5 years admitted to Tashkent City Clinical Infectious Diseases Hospital No. 3 from 2018 to 2020 with a diagnosis of obstructive laryngitis. The diagnosis of obstructive laryngitis is clinical and is typically established based on the patient's history and symptoms, which include hoarseness, a barking cough, and inspiratory stridor.

Table 1. Degrees of laryngeal stenosis (according to V.F. Undritz, 1969)

Degree	Clinical Manifestations
I (stage of compensation)	Chickenpox, coarse persistent cough, moderate shortness of breath
II (stage of incomplete compensation)	Hoarseness, harsh persistent cough, pronounced shortness of breath, agitation, breathing with the use of accessory muscles, retraction of compliant areas of the chest, flaring of nostrils, cyanosis of the nasolabial triangle, tachycardia
III (stage of decompensation)	Hoarseness, harsh persistent cough, anxiety, fear, possible apathy, severe shortness of breath with pronounced retraction of the flexible areas of the chest, paleness, acrocyanosis
IV (terminal stage, asphyxia)	Consciousness is absent, with severe pallor and cyanosis, hypothermia, possible seizures, mydriasis, rapid and shallow breathing, arterial hypotension, and thready pulse. This stage precedes respiratory and cardiac arrest.

Table 2. Westley Croup Severity Scale

Severity of symptoms	Points
Stridor	
Absent	0
Upon stimulation	1
At rest	2
Intraction of concessive sites of chest	
Absent	0
Mild	1
Moderately expressed	2
Severely expressed	3
Airway patency	
Normal	0
Moderately impaired	1
Significantly reduced	2
Cyanosis	
Missing	0
During motor activity	4
Peacefully	5
Consciousness	
No change	0
Disturbances of consciousness	5

*Assessment: *light grade corresponds to a score of less than 3, medium grade - 3-6 points, severe grade - more than 6.*

Table 3. Effectiveness of antibacterial therapy used in children with croup

Groups	Time to resolution of clinical symptoms (days)					Beddays
	Temperature	Intoxication	Shortness of breath	Cough	Voice restoration	
I	2,1±0,3	3,5±0,17	2,7±0,22	6,0±0,25	3,9±0,17	7,63±0,3
II	2,1±0,41	3,2±0,32	3,3±0,27	5,9±0,61	3,5±0,29	7,86±0,3
III	3,6±0,4*	4,2±0,4*	3,2±0,4*	5,9±0,26	3,9±0,27	8,1±0,7
IV	3,8±0,3*	4,5±0,2*	3,7±0,3	6,8±0,2*	4,2±0,3	8,7±0,5
Comparison group	2,2±0,4	3,6±0,19	2,23±0,11	5,8±0,33	3,8±0,2	7,6±0,23

*Assessment: * - Statistical significance of data compared to the control group (*-P<0.05)*

During examination, it is necessary to pay attention to signs of respiratory distress:

- cyanosis,
- involvement of accessory muscles in breathing,
- retraction of the jugular notch and intercostal spaces during breathing,
- assess the respiratory rate.

Auscultation clarifies the nature of dyspnea (inspiratory dyspnea is characteristic for obstructive laryngitis, while expiratory or mixed dyspnea may be observed with concomitant bronchial obstruction). Mixed dyspnea can also be noted in cases of pronounced upper airway obstruction associated with severe croup. To assess the effectiveness of antibacterial therapy, we considered symptoms such as: normalization of temperature, disappearance of intoxication symptoms, shortness of breath, and cough, as well as voice recovery. Antibacterial therapy was prescribed to 86.5% (141) of patients with croup. All children receiving antibacterial therapy were divided into 4 groups: the first group consisted of 46 children with mild croup (stage I stenosis), the second group - 26 children with moderate croup (stage II stenosis), the third group - 44 children with severe croup, and the fourth group - 25 children with croup and bacterial complications (otitis, sinusitis, bronchitis, pneumonia, urinary tract infection). The comparison group consisted of 22 children who did not receive antibacterial therapy.

The degree of laryngeal stenosis - the severity of croup - can also be assessed using the Westley scale.

Results and discussion. Analysis of medical records showed that children with mild and moderate croup were prescribed penicillin antibiotics, while those with severe croup and bacterial complications were prescribed cephalosporins. A comparative analysis of the timing of the disappearance of main clinical symptoms in children from the first group (with mild course) and the comparison group revealed no significant differences. Specifically, fever subsided on average by day 2.1±0.3 (2.2±0.4), intoxication by 3.5±0.17 (3.6±0.19), shortness of breath and cough by 2.7±0.22 and 6.0±0.25 (2.23±0.11 and 5.8±0.33) respectively, and voice restoration was noted by day 3.9±0.17 (3.8±0.2). The average length of hospital stay was 7.63±0.3 (7.6±0.23) days (Table 3).

The second group included children with a moderate course of croup without signs of bacterial infection, in whom the timing of the disappearance of the main clinical symptoms differed insignificantly from the indicators of the comparison group. Temperature normalized on day 2.1±0.4 (2.2±0.4), disappearance of intoxication symptoms was noted on day 3.2±0.3 (3.6±0.2), disappearance of cough and shortness of breath was recorded on days 5.9±0.61 and 3.3±0.27 (5.8±0.33 and 2.2±0.11), respectively, voice restoration was observed on day 3.5±0.3 versus 3.8±0.2. The average length of the child's stay in the hospital was 7.9±0.3 days, while in the comparison group it was 7.6±0.2 days. In the timing of the disappearance of clinical symptoms of the disease in children of the second group, compared to the control group, no significant differences were found.

When analyzing the indicators of the timing of the disappearance of clinical symptoms of the disease in patients of the third group (children with a severe course of croup, fever for more than 3 days), the development of croup in the late stages of ARVI (4-5 days), persistent symptoms of laryngeal stenosis for more than 3 days and changes in the complete blood count (moderate leukocytosis (9-10•109/l), increased ESR 17±0.2 mm/h), a significant difference was revealed compared to the comparison group.

In patients of the third and fourth groups of children, the duration of clinical symptoms was practically the same. The absence of significant differences in the timing of the disappearance of the main clinical symptoms in patients of the 1st and 2nd groups allowed us to conclude that children with a mild and moderate course of croup do not require antibacterial therapy. Antibacterial therapy is effective in the presence of bacterial complications in croup; presence of signs of bacterial infection: development of croup in the late stages of ARVI, duration of fever more than 3 days, persistence of symptoms of laryngeal stenosis for more than 3 days; changes in clinical blood test indicators (moderate leukocytosis, neutrophilia, increased ESR).

Conclusions. The study revealed no significant differences in the improvement of clinical symptoms

between children with grade I and II stenosis who received antibacterial therapy and the comparison group who did not receive such therapy. The effectiveness of antibacterial therapy was observed in children of the third and fourth groups. Thus, antibacterial therapy is indicated for children with croup who have grade II and III stenosis, in the presence of laboratory and clinical signs of bacterial inflammation.

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АНТИБАКТЕРИАЛЬНАЯ ТЕРАПИЯ У ДЕТЕЙ С ОБСТРУКТИВНЫМ ЛАРИНГИТОМ

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Резюме. *В данной статье проведено ретроспективный анализ историй болезни 163 детей в возрасте от 3 месяцев до 5 лет, поступивших в городскую клиническую инфекционную больницу №3 г. Ташкента за период с 2018 по 2020 года с диагнозом обструктивный ларингит. Целью исследования было изучение эффективности применения антибактериальной терапии при лечении обструктивного ларингита (круп) у детей. Эффективность антибактериальной терапии оценивалась по срокам исчезновения клинических симптомов заболевания: нормализация температуры тела, исчезновение симптомов интоксикации, одышки, кашля, восстановления голоса, продолжительность стационарного лечения. Результаты исследование позволило определить показания к назначению антибактериальной терапии. Включение антибиотиков в терапию обструктивного ларингита показано детям с крупом с II и III степенью стеноза при наличии лабораторных и клинических признаков бактериального воспаления.*

Ключевые слова: *дети, обструкция, ларингит, антибиотикотерапия.*