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OPTIMISATION OF TREATMENT METHODS FOR LARYNGOTRACHEITIS IN CHILDREN

Samiyeva Gulnoza Utkurovna
Head of the Department, Doctor of Medical Sciences, Associate Professor
Chair of Pathological Physiology
Samarkand State Medical University
Farida Farhodovna Kholikova
Assistant at the Department of Pathological Physiology
Samarkand State Medical University

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Abstract:

Acute stenotic laryngotracheitis (SLT, croup, obstructive laryngitis) is one of the pressing and unresolved problems in pediatrics [1; 2]. Today, croup syndrome is characterized by a high prevalence in childhood, pronounced dynamism of clinical symptoms, the possibility of rapid development of severe bacterial complications and lethal outcome, and an increase in the percentage in favour of recurrent forms of obstructive laryngitis [3-5]. Primary SLT develops during the second or third year of life, less frequently at an older age. More than 30% of patients with obstructive laryngitis relapse within 2 years of the first episode of laryngeal stenosis, often with signs of bronchial obstruction. There is an ongoing discussion about the influence of various factors on the development of recurrent stenotic laryngotracheitis, but no unified point of view can be found in the publications of researchers [6]. In foreign and domestic literature, high-risk criteria for the development of recurrent SLT in children can be found, including concomitant allergopathology, immunological dysfunction, the presence of gastroesophageal reflux, and the occurrence of a first episode of croup before 6 months of age [7; 8]. Premorbid background and comorbid conditions are known to affect the course of acute, especially recurrent and chronic respiratory diseases to a certain extent.

Keywords: Laryngotracheobronchitis, Children Treatment.

INTRODUCTION:

In recent years great attention is paid to treatment of stenotic laryngotracheobronchitis both compensated [7,8], and decompensated [1,4], incidence of which has an increasing tendency; despite progress in treatment of this pathology mortality in decompensate forms remains high - from 10% to 60% [2, 3, 6]. There is an increase in the frequency of recurrent laryngeal stenoses [5, 11]. Doctors of various specialties are concerned about all this. In practice, it is important to prevent the transition from compensated to decompensate forms of croup syndrome, which is facilitated by early diagnosis and hospitalization, timely pre-hospital emergency care and correct timely inpatient treatment.

MATERIALS AND METHODS OF TREATMENT:

In recent years, we have gained some positive experience in the management of children with croup syndrome, which is the basis of this report. Patients with stage I and II croup syndrome are admitted to the intensive care unit (ICU) of an infectious diseases hospital, and those with stage II-III and III croup syndrome to the pediatric intensive care unit. Every year, 70-80 children pass through the PIT, and 2-3 are admitted at a time. Between 2017 and 2022, 207 children with Croup Syndrome were treated.

RESULTS:

Analysis of the data in the table shows that in recent years there has been a significant increase in the number of patients with acute respiratory viral infections (ARI) accompanied by croup syndrome. A more detailed analysis was made of 134 patients with croup syndrome aged from 2 months to 8 years. The greatest number of patients was registered in the winter-spring period. The majority (69.7%) were boys, which is consistent with the literature [8-10 et al.] 66.2% of the patients were under 2 years of age, of whom 27.2% were children of the first year of life. Croup syndrome occurred more frequently in the evening and at night (74.5%). Most (84%) children

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were hospitalized within the first hours of the onset of croup by ambulance. 16% of children were admitted on the 2nd day, which was due to parents not seeking medical help in time and refusing hospitalization. Many patients had increased allergic disposition: food and drug allergies were detected in 18.6%, recurrent croup syndrome in 20%, and one child had a previous tracheostomy due to grade III stenosis, exudative-catarrhal diathesis was detected in 24% of patients. The vast majority of children had an unfavourable premorbid background: perinatal pathology, a history of frequent respiratory disease, anemia, rickets, encephalopathy, etc. The outcome of croup syndrome depends on the correct assessment of severity in the pre-hospital phase, the timeliness of hospitalization and emergency care. Analysis of the data showed that 96 (41%) children were not treated in the pre-hospital phase, so that the symptoms of torsade de pointes increased during transport and children were delivered with signs of torsade de pointes I and II. Ambulance doctors administered bronchodilators intramuscularly to children in case of grade I circles, hormonal and bronchodilators in case of grade I-II and II circles, and hormonal drugs only in a few cases.

The combination of corticosteroids and bronchodilators was the most effective. When corticosteroids and bronchodilators were used in combination, there was no effect in 18.2% of the children, while bronchodilators alone had no effect in more than 56% of the children. On admission, the severity of the condition was assessed by the presence of the following symptoms: external signs of respiratory failure, the degree of tightness of intercostal muscles, jugular fossa, supra- and subclavian areas, nasal wings tension, cyanosis and acrocyanosis, respiration and heart rate, signs of intoxication, body temperature, child behavior, etc. Croup of grade I was observed in 134 children, grade I-II - in 60, grade II - in 40 children. Treatment of croup syndrome in hospital was complex with the use of nebulizer inhalers. Children with 1st degree of Croup syndrome received fractional medication inhalation for 15 minutes 3-4 times a day. In grade II croup, this therapy was continued until stenosis was advanced, and then treatment was administered fractionally as in grade I croup. Drug aerosol therapy for grade I croup included eufillin and dimedrol in distilled water with the addition of glycerol as an aerosol stabiliser. For first-degree and second-degree croup, hydrocartis one was additionally included in inhalations. The drugs were administered in age-appropriate doses, recalculating for possible losses in the inhaler. In addition to treatment with nebulizer inhalation, all children were prescribed immunomodulatory antiviral drugs, some children parenterally antibiotics to prevent possible complications and to treat bacterial complications. The effectiveness of treatment was assessed by condition: children became calmer, sleep normalised, breathing became less noisy, coughing was less frequent, signs of respiratory insufficiency decreased and disappeared, voice became clear. Treatment of patients with I and I--II degree of croup syndrome by nebulizer inhaler allowed to refuse intravenous injections of bronchodilators, hormonal and detoxifying drugs, and in patients with II degree, intravenous injections were singular, which excluded additional irritations, exacerbating the clinical picture of croup. The positive effect of treatment with nebulizer is evidenced by the following data: in 38.1% of the children with 1st degree stenosis croup broke down for the first hour of treatment (when administered once), in 50.8% after repeated use and only 11.1% required triple or more frequent and prolonged inhalation. Against the background of medical treatment alone, dyspnea persisted in 75% of patients with grade I stenosis and on day 2/3, dyspnea persisted in 35.3% of patients, and hoarseness of the voice in 50% of patients. Treatment with inhalation has reduced the use of hormonal drugs both at the beginning of the disease and during treatment, and parenteral administration has decreased sharply.The fact that the number of transfers to the intensive care unit has decreased sharply testifies to the effectiveness of treatment. Out of 207 children treated between 2017 and 2021, 14 (2.1%) were transferred to the intensive care unit, including 8 children with grade III stenosis and 6 children with a long-standing clinical picture of croup. Material analysis indicates that the majority (85%) of children were prescribed antibiotics from admission, but during follow-up of patients in PIT in some cases (in mild forms of the disease, in rapidly resolvable croup and in the absence of complications) parenteral antibiotic administration was abolished. Only 68% of children received a complete course of antibiotic therapy (5-7 days). Our experience shows that early use of inhalation therapy in uncomplicated stenosis contributes to early discharge of children (on the 3rd-4th day in PIT). There was no repeated admission of patients shortly after discharge. It is known that the course of stenotic laryngotracheitis depends on the time of development of the croup. We have analyzed 55 cases, when croup developed against the background of the common symptoms of acute respiratory infections (group 1), and 47 cases, when the disease began directly with croup (group 2). The severity of patients in both groups was about the same. In group 1 39 (71%) cases developed stenosis

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on day 2 or 3, 9 (16%) on day 3 or 6, 7 after day 7. Treatment with nebulizer was similar but 68% of the children in group 1 received antibiotics compared to 32% in group 2. Croup syndrome resolved earlier and more easily in Group 2, on day 1 - in 42.6%, while in Group 1 - in 23.6%, which can be explained by the ratio of viral and bacterial origin in both variants of the disease. The same is evidenced by the incidence of complications: in Group 1, complications were registered in 19 (34.5%) children, in Group 2 - in 11 (23.4%). Bronchitis (12 and 7 cases respectively), pneumonia (4 and 3 cases), otitis media (3 and 1 case) were more frequently reported as complications. The observations showed that in those cases in which croup developed against the background of clinically pronounced acute respiratory infections, complications developed more frequently, indicating a greater role of bacterial flora in the development of complications in this group of children.

CONCLUSIONS:

Thus, the experience of using inhalation therapy in the complex treatment of croup syndrome showed good efficacy of this type of treatment, as evidenced by the rapid resolution of croup, absence of deterioration in the condition of children, the need for resuscitation measures was dramatically reduced. The use of this method is economical, as the number of parenteral interventions decreased, the number of intravenous injections of expensive medications decreased, and the possibility of parenteral infection decreased. Ease of use and fabrication of inhalers allow this technique to be used in all hospitals.

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