



Acute Laryngitis in Children: A Series of 121 Cases

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Abstract

Objective: To study the clinical analysis of acute laryngitis in children.

Materials and Methods: One hundred and twenty one children with acute laryngitis who were treated in our hospital from January 2016 to June 2018 were selected as the observation objects. All the test indexes of the children met the diagnostic criteria of acute laryngitis in children.

Results: The disease occurred frequently in the spring and autumn season, especially in 1 to 3 year old boys. Eighty three percent of the 121 children were treated with antibiotics, 83% were treated with intravenous hormones, and 99% were treated with budesonide atomization inhalation. The symptoms were not improved or even aggravated in 0 cases.

Conclusion: The onset of the disease is urgent, the disease progresses rapidly, and it is easy to be complicated with laryngeal obstruction. Antibiotics, sufficient hormone and oxygen atomization inhalation of budesonide should be given in time.

Keywords: Acute laryngitis in children; Clinical analysis; Dyspnea

Introduction

Acute laryngitis in children are infected by bacteria, viruses, etc., and the mucous membrane of the vocal tract is damaged, which increases the permeability of the mucosa and congestion and edema of the loose connective tissue, and then increases the hyper responsiveness of the vocal tract [1,2]. In addition, because children's laryngeal nerves are more sensitive, they are prone to spasms after acute stimulation, followed by symptoms such as dyspnea, wheezing, and even severe asphyxia [3,4]. Its typical symptoms of laryngitis are inspiratory wheezing and a barking cough [5]. If timely and effective treatment is not taken, the condition can be aggravated progressively. Endangering the health and even the lives of children. The clinical data of 121 patients with acute laryngitis treated in our hospital from January 2016 to December 2018 were analyzed retrospectively.

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Diagnostic criteria

It accords with the diagnostic criteria of acute infectious laryngitis in the 8th edition of Zhufutang practical pediatrics and the 9th edition of Pediatrics written by Zhufutang.

Clinical grading

According to the severity of inspiratory dyspnea, laryngeal obstruction was divided into four degrees [the 8th edition of Zhufutang practical pediatrics page 1162].

Degree I: Inspiratory laryngitis and dyspnea occurred after exercise, and there was no change in respiratory sound and heart rate in lung auscultation.

Degree II: Laryngeal dyspnea and inspiratory dyspnea also occurred at rest. Laryngeal conduction or tubular respiratory sound could be heard in lung auscultation and heart rate increased.

Degree III: In addition to the above symptoms of laryngeal obstruction, restlessness due to hypoxia, cyanosis of lips and fingers (toes), round eyes, panic, sweating of head and face, respiratory sound of lung decreased obviously, heart rate was fast, and heart sound was low.

Degree IV: Gradually weak, lethargic state, due to inability to breathe, three concave sign is not obvious, pale and gray, lung auscultation respiratory sound almost disappeared, only tracheal conduction sound, arrhythmia, heart sound blunt, weak.

Materials and Methods

One twenty one patients with acute laryngitis treated in our hospital from January 2016 to December 2018 were selected as subjects, including 83 males and 38 females, 36 patients aged 4 months to 1 year, 61 patients aged 1 to 3 years, and 10 patients aged 3 to 4 years. Thirteen cases were over 4 years old. The disease is more common in the spring. Among them, 78 cases had fever, 109 cases had hoarseness, 15 cases had laryngeal obstruction (degree I obstruction 6%, degree II obstruction 67%, degree III obstruction 27%), and 2 cases had convulsions. All children's families gave informed consent to this study. Children with other serious diseases and drug contraindications were excluded.

- Study Area: Respiratory diseases
- Study period: From January 2016 to December 2018
- Study design: Longitudinal hospital-based observational study
- Study population: Patients with acute laryngitis treated in our hospital
- Inclusion criteria: The patients diagnosed as acute laryngitis according to the 8th edition of Zhufutang practical Pediatrics
- Exclusion criteria: The patients with other diseases characterized similar to laryngitis

Sample size – 121

- Ethical considerations: Has been reviewed by the ethics committee

Statistical analysis

The children were randomly distributed, given different treatment methods, observed the treatment effect, and drawn charts.

Result

Result 1

Of the 121 cases, 69% were males, 31% were females, 30% were under 1 year old, and 51% were 1 to 3 years old. 19% were over 3 years old. Mild children accounted for 65%, and severe cases accounted for 35% and 2% with febrile convulsions and 12% with laryngeal obstruction. According to the classification, we categorize a mild case and a severe case with severity of inspiratory dyspnea, Degree I or Degree II is a mild case, Degree III or Degree IV is a severe case (Figure 1).

Onset season

41 cases in spring (34%), 32 cases in summer (26%), 34 cases in autumn (28%), 14 cases in winter (12%) (Figure 2).

Laboratory examination

Abnormal erythrocyte distribution width variation coefficient accounted for 6%, erythrocyte distribution standard deviation abnormal accounted for 43%, and leukocyte abnormal accounted for 30%, neutrophil abnormal accounted for 56%, CRP abnormal 35%, PCT abnormal 37% (Figure 3).

Treatment

Control of infection: The disease of acute laryngitis is progressing rapidly, so it is difficult to quickly determine whether it is a virus or a bacterial infection. An appropriate and sufficient amount of broad-spectrum antibiotics should be selected as early as possible to control

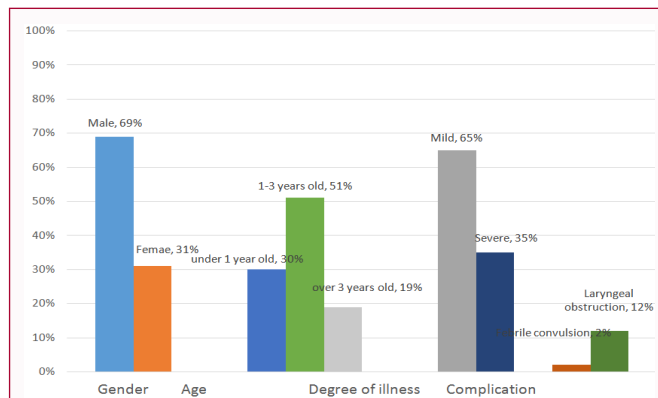


Figure 1: Classification of cases in gender, age, degree of illness and complication.



Figure 2: Pie chart represents the percentage of cases in Different seasons.

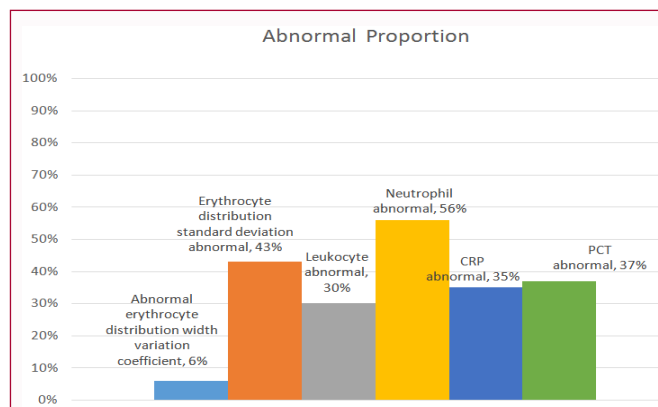


Figure 3: Abnormal proportions of erythrocyte, leukocyte, neutrophil.

the infection. In general, children can be treated with an antibiotic. In patients with severe illness, more than two kinds of antibiotics can be used to exert synergistic effect, and intravenous administration is appropriate [5]. Of the 121 children admitted to hospital with acute infectious laryngitis during this period, 83% of the children were treated with antibiotics, of which 49% were cefuroxime sodium, ceftriaxone sodium 39%, erythromycin 5%.

Glucocorticoid: Hormones have anti-inflammatory and allergic effects, and have a good effect in treating laryngitis, but the amount should be large enough, otherwise it will not be effective. Intravenous dexamethasone (2 mg to 5 mg each time, increasing or decreasing depending on age) or hydrocortisone (5 mg/kg to 10 mg/kg) should be administered in 4 h to 6 h for patients with severe degree II or degree III respiratory distress [6]. Among these 121 children, the

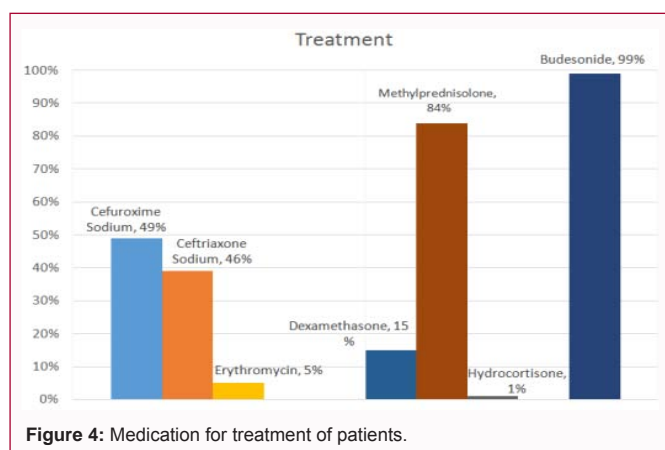


Figure 4: Medication for treatment of patients.

utilization rate of intravenous steroid is 83%. Among them, 15% were dexamethasone, 84% methylprednisolone and 1% hydrocortisone, Nebulized budesonide 99% (Figure 4).

Results 2

The disease occurred frequently in the spring and autumn season, especially in 1 year to 3 year old boys. Eighty three percent of the 121 children were treated with antibiotics, 83% were treated with intravenous hormones, and 99% were treated with budesonide atomization inhalation. The symptoms were not improved or even aggravated in 0 cases.

Discussion

Acute infectious laryngitis refers to acute diffuse inflammation of laryngeal mucosa, characterized by barking cough, hoarseness, laryngeal ringing and inspiratory dyspnea caused by viral or bacterial infection. Can also be concurrent in measles, whooping cough, influenza and other acute infectious diseases, common viruses are influenza virus, parainfluenza virus and adenovirus; common bacteria are *Staphylococcus aureus*, *Streptococcus pneumoniae* and *Streptococcus pneumoniae* [7]. This study showed that the disease was most common in infants and young children (1 year to 3 years old) and in boys, male (69%) and female (31%). In laboratory indicators, leukocyte abnormalities (30%, including abnormal granulocytes accounted for 56%), C-reactive protein abnormalities (35%), and procalcitonin abnormalities (37%). Since most severe cases are associated with bacterial infection, a certain amount of broad-spectrum antibiotics should be selected to control the infection at an early stage and delay the progression of the disease.

In this experiment, 12% of the children were complicated with laryngeal obstruction. After admission, the condition was effectively controlled by systemic application of antibiotics, local atomization inhalation and systemic administration of appropriate amounts of hormones. For children with laryngeal obstruction, the degree I and the degree II should be treated effectively in time. Tracheotomy should also be performed on the fourth and third degree patients with dyspnea. Degree IV antibiotics should be used for 83% intravenous hormone 83% atomization inhalation. Tracheostomy should be performed immediately to save the life of the child.

Acute infectious laryngitis has an acute onset, is mild during the day, is severe at night [8], and is easy to be complicated with laryngeal obstruction. If it is not rescued in time, it is easy to cause asphyxiation and death [9]. Therefore, it should be explained to the family members of the children that children with hoarseness should be diagnosed and treated early. Control the progress of the disease, do not be careless.

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