



CLINICAL STUDY OF ACUTE LARYNGITIS AMONG IRAQI CHILDREN

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ABSTRACT

The objective of the study was to study the clinical analysis of acute laryngitis among a sample of Iraqi children. In this study, 100 children with acute laryngitis who were treated in Mahmoudia general hospital Baghdad / Iraq from January 2016 to June 2018 were selected as the observation objects. All the test indices of the children met the diagnostic criteria of acute laryngitis in children. The results showed that the disease occurred frequently in the spring and autumn seasons, especially in 1–3-year-old boys. About 80% of the 100 children were treated with antibiotics, 80% were treated with intravenous hormones, and 96% were treated with budesonide atomization inhalation. The symptoms were not improved or even aggravated. It can be concluded from the current study that the onset of the disease was urgent, the disease progressed rapidly, and it was 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.

INTRODUCTION

In acute laryngitis, children are infected by bacteria and viruses, etc., where the mucous membrane of the vocal tract is damaged. As a result, an increase in the permeability of the mucosa and congestion and edema of the loose connective tissue occurs, which increases the hyper-responsiveness of the vocal tract.^[1,2] Moreover, in 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] The 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. In this study, we presented our findings obtained from clinical data of 100 patients with acute laryngitis treated in our hospital from January 2016 to December 2018.

Diagnostic criteria

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

Clinical grading

According to the severity of inspiratory dyspnea, laryngeal obstruction was divided into four degrees (The

8th edition of Zhu Futang practical Pediatrics page-1162), as presented below.

- 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, and the respiratory sound of lung decreased significantly, heart rate was fast, and heart sound was low.
- Degree IV: Gradually weak, lethargic state, due to inability to breathe, three concave signs are not obvious, pale and gray, lung auscultation respiratory sound almost disappeared, only tracheal conduction sound, arrhythmia, heart sound blunt, and weak.

METHODS

A total of 100 children with acute laryngitis treated in Mahmoudia General Hospital/ Baghdad- Iraq from January 2016 to December 2018 were selected as subjects. The sex and age distribution of the selected subjects was as: 70 males and 30 females, 30 patients

aged 4 months–1 year, 50 patients aged 1–3 years, 20 patients aged 3–4 years. The disease was shown to be more common in the winter season. Among them, 65 cases had fever, 91 cases had hoarseness, 13 cases had laryngeal obstruction. Degree I obstruction 1 (8%), degree II obstruction 9 (69%) and degree III obstruction 3 (23%), while 2 cases had convulsions. Consent was obtained from families of the patients to this data in this study. Children with other serious diseases and drug contraindications were excluded from the study.

Statistical analysis

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

RESULTS

Among 100 cases, 70% were males, 30% were females, 30% were under 1 year old and 50% were 1–3 years old. 20% were over 3 years old [Table 1]. Mild children accounted for 60% and severe cases accounted for 40%. According to the classification, we categorize mild cases and severe cases with the severity of inspiratory dyspnea. Degree I or degree II were regarded as mild cases and degree III or Degree IV were regarded severe cases as shown in table (1).

The number of patients reported in our hospital showed that different seasons played their roles to influence the percent spread of this disease. We found 39 cases in spring (39%), 30 cases in autumn (30%), 15 cases in summer (15%), and 16 cases in winter (16%) as illustrated in table (1).

Table (1): Percent distribution of gender, degree of illness, and complications of the study subjects.

Gender		
	Male	70%
	Female	30%
Age		
	< 1 year	30%
	1-3 year	50%
	>3 years	20%
Severity		
	Mild	60%
	Severe	40%
Complications		
	Febrile convulsion	3%
	Laryngeal obstruction	10%
Onset season		
	Spring	39%
	Winter	16%
	Autumn	30%
	Summer	15%

Laboratory examination

Table (2) demonstrated that abnormal erythrocyte distribution width variation coefficient accounted for 5%, erythrocyte distribution standard deviation abnormal

accounted for 40%, leukocyte abnormal accounted for 28%, neutrophil abnormal accounted for 55%, C-reactive protein (CRP) abnormal accounted for 31%, and procalcitonin (PCT) abnormal accounted for 35%.

Table (2): Percent distribution of laboratory investigations

Laboratory examination	(%)
Erythrocyte distribution abnormal	5%
Erythrocyte distribution normal	40%
Leukocyte abnormal	28%
Neutrophil abnormal	55%
CRP abnormal	31%
PCT abnormal	35%

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 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 a synergistic effect, and intravenous administration is appropriate [6]. Among 100 children admitted to hospital with acute infectious laryngitis during this period, 80% of the children were treated with antibiotics, of which 50% were treated with cefuroxime sodium, 40% with ceftriaxone sodium and 5% with erythromycin.

Glucocorticoids

Hormones have anti-inflammatory and allergic effects and have a good effect in treating laryngitis, but the dose should be large enough, otherwise, it will not be effective. Intravenous dexamethasone (2–5 mg each time, increasing or decreasing depending on age) or hydrocortisone (5–10 mg/kg) should be administered in 4–6 h for patients with severe Degree II or Degree III respiratory distress [7]. Of the 100 children, the utilization rate of intravenous steroids is 80%; among them, 14% were dexamethasone, 85% methylprednisolone, 1% hydrocortisone, 96% were treated with budisonide inhalation as shown in table (3).

Table (3): Percent distribution of the treatments given.

Treatment Antibiotic		
	Cefuroxime sodium	50%
	Ceftriaxone	45%
	Erythromycin	5%
Glucocorticoids		
	Dexamethasone	14%
	Methyl prednisolone	85%
	Hydrocortisone	1%
	Budisonide	96%

Outcome of this study

The disease occurred frequently in the spring and autumn season, especially in 1–3-year-old boys. About 80% of the 100 children were treated with antibiotics, 80% were treated with intravenous hormones, and 96% were treated with budesonide atomization inhalation. The symptoms were not improved or even aggravated in 0 cases.

DISCUSSION

Acute infectious laryngitis refers to a diffused inflammation of laryngeal mucosa that is characterized by barking cough, hoarseness, laryngeal ringing, and inspiratory dyspnea caused by a viral or bacterial infection. It 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* and *Streptococcus pneumoniae*. In this study, the disease was most common in infants and young children (1–3 years old) and in boys, male (70%) and female (30%). In laboratory indicators, leukocyte abnormalities (28%, including abnormal granulocytes, accounted for 55%), CRP abnormalities (31%), and PCT abnormalities (35%). Since most severe cases are associated with a 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 study, 13 (13%) 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, Degree I and 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, it is mild during the day, and severe at night^[9], and it is easy to be complicated with laryngeal obstruction. If it is not rescued in time, it is easy to cause asphyxiation and death.^[10] 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 does not be careless.

REFERENCES

1. Qian Y, Zhong S, Hu G, Kang H, Wang L, Lei Y. Sudden sensorineural hearing loss in children: A report of 75 cases. *Otol Neurotol*, 2018; 39: 1018-24.
2. Zengel P. Upper respiratory tract infections (sinusitis, otitis, laryngitis ect.). *MMW Fortschr Med*, 2019; 161: 40-4.

3. Jaworek AJ, Earasi K, Lyons KM, Daggumati S, Hu A, Sataloff RT. Acute infectious laryngitis: A case series. *Ear Nose Throat J*, 2018; 97: 306-13.
4. Sharma BS, Shekhawat DS, Sharma P, Meena C, Mohan H. Acute respiratory distress in children: Croup and acute asthma. *Indian J Pediatr*, 2015; 82: 629-36.
5. Tapiainen T, Aittoniemi J, Immonen J, Jylkkä H, Meinander T, Nuolivirta K, et al. Finnish guidelines for the treatment of laryngitis, wheezing bronchitis and bronchiolitis in children. *Acta Paediatr*, 2016; 105: 44-9.
6. Mei Z. *Clinical Treatment of 30 Cases of Acute Infective Laryngitis in Children*. Beijing, China: World Latest Medicine Information (Electronic Version), 2015; 166-7.
7. Yamei H, Zaifang J. *Practical Pediatrics of Zhu Futang*. 8th ed. Beijing: People's Health Publishing House, 2018; 2547-8.
8. Weiping W. *Pediatrics*. 9th ed. Beijing: People's Health Publishing House, 2018; 242-3.
9. Behrman RE, Kliegman RM, Jenson HB. *Nelson Textbook of Pediatrics*. 6th ed. Harcourt Asia: Science Press, W.B Saunders, 2000; 1276-8.
10. James DC, William JS, Gail JH, Peter JH, Sheldon LK. *Textbook of Pediatric Infectious Diseases*. 7th ed. Philadelphia, PA: Elsevier Saunders, 2014; 241.