

Progress in Traditional Chinese and Western Medicine in Mycoplasma Pneumonia in Children

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Abstract: Mycoplasma pneumonia in children is a common and frequently occurring disease in pediatrics. In addition to the respiratory symptoms, clinical manifestations often involve digestive, blood and cardiovascular systems, which have a serious impact on the health and life of children. At present, the treatment is mainly on macrolide antibiotics, immunotherapy, and integrated traditional Chinese and western medicine. Because the pathogenesis of mycoplasma pneumonia is not very clear, and the clinical manifestations are lack of specificity, and the macrolide antibiotic resistance rate is gradually increased, which poses new challenges to the diagnosis and treatment program of mycoplasma pneumonia. According to the incidence characteristics of mycoplasma pneumonia in children, this paper reviews the relevant literature in recent years, and reviews the progress of the diagnosis and treatment of mycoplasma pneumonia in children.

1. Introduction

Mycoplasma pneumonia (mycoplasma pneumonia), also known as primary atypical pneumonia or coagulation set positive pneumonia, is a kind of disease caused by infection with mycoplasma pathogens. Respiratory droplet transmission is the main transmission route, and the release of pathogenic substances after attachment to the respiratory tract causes inflammatory reactions to the respiratory tract, which mostly occurs in childhood. The survey shows that the incidence of mycoplasma pneumonia in children is increasing year by year, accounting for 10% ~ 40% ^[1] of community-acquired pneumonia in children, was more common in school-age children ^[2], All the year round can be the disease, more in autumn and winter ^[3]. Clinical manifestations are mainly with fever and cough as the main symptoms, easy to infect, lack of specificity, easy to be confused with the common cold and lead to misdiagnosis or missed diagnosis. If the diagnosis is not clear, it is easy to cause deterioration and endanger the life safety of children. Therefore, in order to better diagnose and treat mycoplasma pneumonia in children, this study briefly expounds the progress of the diagnosis and treatment of mycoplasma pneumonia in children in recent years to provide an effective basis for the treatment of clinical diseases.

2. Diagnostic of pediatric mycoplasma pneumonia^[4]

2.1 Diagnosis of clinical symptoms

The clinical symptoms of common mycoplasma pneumonia is given priority to with fever and cough, clinical is given priority to with high fever, a few low heat, at first for paroxysmal dry cough, at night, severe whooping cough spasm cough, lasting 14-20 days, infant symptoms are heavier, breathing and breathing difficulties, older lung rale time is late, can appear lung solid signs. The clinical characteristics of refractory mycoplasma pneumonia are mostly regular children have persistent fever after 7 days of treatment with macrolide, and worse clinical symptoms, extrapulmonary complications or progressive imaging are called refractory mycoplasma pneumonia^[5]. Huang Jianzhen ^[6] Studies have found vulnerability to occurrence in children with a longer duration Heavy chest imaging performance, rapid disease progress, and symptoms such as long-term cough and repeated fever, children with large lung inflammation, lung lectasis, more even lung abscess and necrosis pneumonia, some children with symptoms delay, later prone to chronic pneumonia, pulmonary fibrosis and other problems. Li Wen ^[7] In clinical studies, it was found that the clinical lesions of Mycoplasma pneumoniae, in addition to respiratory symptoms, also showed abnormal digestive system, blood system, nervous system and other systemic multiple systems function. In the process of clinical diagnosis, we should not only pay attention to the respiratory symptoms, but also comprehensively consider other systemic symptoms to prevent misdiagnosis and missed diagnosis.

2.2 Laboratory diagnosis

2.2.1 Serological diagnosis

After mycoplasma pneumoniae infection, the body can produce specific IgM and IgG antibodies after a series of immune reactions. IgM antibody is generally detected positive after 1 week of infection, 3~4 weeks to peak, can be used as an early infection ^[8], Ig M antibody negative cannot deny MP infection, continue to detect Ig G antibody, its generally for the fifth week after the disease concentration peak, long, its content increase degree for the recent infection, if slightly increased late infection, can also be used as the previous infection index^[9]. Serological diagnosis included nonspecific experiments and specific experiments.

Nonspecific experiments, namely condenser-set assays, were performed by detecting serum titers 1:64 as positive, such a test positive rate is low and prone to produce false positives, generally only used as an auxiliary diagnosis^[10].

Specific experiments include gelatin particle agglutination tests, complement binding tests, indirect immunofluorescence experiments, indirect blood coagulation tests, enzyme-linked immunosorbent experiments, chemiluminescence immunoanalysis, etc. After comparison and clinical trial found: Chemiluminescence immunoanalysis is more suitable for clinical detection, with a low misdiagnosis rate, which can be used as a priority^[11].

2.2.2 Mycoplasma pneumoniae

Isolation and culture of Mycoplasma pneumoniae has been recommended by the World Health Organization as a "gold standard" for the judgment of M. pneumoniae infection. pharyngeal swabs or sputum samples were often collected and incubated at 37°C containing 5% CO₂. The positive detection rate was higher in the course of 7 d and age groups from 4 to 7 years^[12].

2.2.3 Nucleic acid detection method

Xie Hongbo^[13] selected 480 children with suspected of mycoplasma pneumonia in the diagnosis of Shenzhen Baoan District Maternal and Child Health Hospital, collected sputum, detected sputum MP-DNA, IgM antibody detection of MP-DNA and antibody can improve the sensitivity and specificity of MP detection, provide reference for early diagnosis of mycoplasma pneumonia, MP-DNA test can reflect the treatment effect. However, different gender and age differ in the positive rate of MP-DNA, which is still easy to lead to misdiagnosis.^[14]

2.3 Imaging examination

The time required for mycoplasma pneumonia antibody titer to increase is long, so imaging examination is important to determine the diagnosis of mycoplasma pneumonia^[15]. Wang Huiguang^[16] In 56 children with mycoplasma pneumonia Retrospective analysis of chest X-ray imaging found that the most common X-ray imaging of pediatric mycoplasma pneumoniae pneumonia showed consolidation of leaf space, infiltration around bronchial vascular tract, and mixed high-density lesions. Zhang Ning^[17] CT results of 114 children with mycoplasma pneumonia found that they were mostly lung texture thickening and blurred, often involving multiple lung leaves, unilateral or bilateral ground glass shadow, solid shadow and grid nodules, more common in double lung lobes and mostly lobular distribution. Wang Qian^[18] After the imaging analysis of 40 children with severe mycoplasma pneumonia and 40 children with mild mycoplasma pneumonia pneumonia: In the severe group, the right lung lesions mainly showed large patch shadow, while the children in the mild group mainly had spot patch shadow of two lungs. Chest CT showed that the children in the severe group could also show pleural effusion, but not in the mild group. Relevant studies reported that the accuracy of chest X-ray examination of mycoplasma pneumonia was 75.71%, and the accuracy of chest CT examination was up to 92%^[19].

3. Treatment of mycoplasma pneumonia

3.1 Western medicine treatment^[20]

At present, for common mycoplasma pneumonia often selected macrolide antibiotics treatment, often clinical azithromycin sequential therapy^[21], children intravenous 10mg / (kg · d) azithromycin injection once / d, 3-5d, stable to 10mg / (kg · d) azithromycin enteric treatment, 3d after 3d, 3d, 2 weeks for 1 course, continuous treatment for 1 course. Consider using systemic glucocorticoids if azithromycin exhibits severe or refractory mycoplasma pneumonia for gastrointestinal stimulation^[22]. Zhao Jing^[23] point out Glucoids reduce capillary permeability and infiltration of inflammatory mediators, thereby reducing immune damage in children with mycoplasma pneumonia. Zhao Chunyang^[24] By retrieving the Chinese and English database, Systematic analysis of the role of glucocorticoids in the treatment of mycoplasma pneumonia in children using Revman5.0 revealed that hormones can treat children with mycoplasma pneumonia by regulating body temperature and CRP. Zuo Zhiyan^[25] pass through the effect of aerosol inhalation of budesonide in 102 children with Mycoplasma pneumoniae on pulmonary function was found that atomization inhalation of budesneide could effectively improve the clinical performance and improve the treatment effectiveness of children.

3.2 Traditional Chinese medicine treatment

At present, the clinical diagnosis and treatment of mycoplasma pneumonia in traditional Chinese medicine all refer to the diagnosis and treatment guidelines of pneumonia and cough. Gong

Wenhao^[26] according to the classification of viscera, that the location of mycoplasma pneumonia is in the lung. From the lung treatment of his dirty, can not only relieve the disease, but also prevent the development of the disease. From the spleen theory can improve qi and spleen, phlegm and cough, in order to "cultivate gold", from the liver treatment is wood fire penalty, from the kidney treatment is qi and cough, upright and kidney, to avoid the course of disease. Wang Nan^[27] believes that mycoplasma pneumonia is caused by the loss of lung after the lung, and then the lung obstruction. It has the characteristics of adverse air rise and fall and difficult to go. The clinical manifestations are the characteristics of fever, cough and asthma, as well as the characteristics of changing his viscera. The clinical manifestations and pathological changes of refractory mycoplasma pneumonia are related to pulmonary bi, and the etiology and pathogenesis are connected with pulmonary bi. The treatment from pulmonary bi can more effectively treat refractory pulmonary pneumonia. Li Na^[28] In Based on the analysis of the medication rules of mycoplasma pneumonia by the auxiliary platform of traditional Chinese medicine inheritance, it is found that the commonly used Chinese medicine for the treatment of mycoplasma pneumonia are clear diarrhea lung heat, cough and phlegm, and soup is a commonly used prescription for the treatment of mycoplasma pneumonia in children. Wang Bo^[29] treated 30 cases of mycoplasma pneumonia and found that clear gold and phlegm soup could effectively improve the treatment efficiency, shorten the time of hospitalization and reduced fever reduction in children, and had a good effect on the treatment of mycoplasma pneumonia in children.

3.3 Integrated treatment of traditional Chinese and Western medicine

At present^[30], the clinical drugs for pediatric mycoplasma pneumoniae pneumonia are mainly macrolide drugs. However, prolonged use of such drugs can lead to drug resistance and adverse reactions in children. Studies have shown that, TCM internal and external treatment combined with azithromycin can effectively reduce the course of MPP in children, and can also improve pediatric immunity in addition to reducing clinical symptoms, including diet, sleep, defecation and other aspects. Yang Jie^[31] found in the clinical diagnosis and treatment that the use of macrolide antibiotics in children with traditional Chinese medicine, can effectively reduce the incidence of drug resistance and adverse reactions. Yu Chunyan^[32] et al randomly divided 84 children with mycoplasma pneumonia into 2 groups of 42 in each group. All two children were injected with 10 mg / (kg · d) once a day for 7d. After 3 d of withdrawal, medication continued for 3 d. The observation group gave self-planned pulmonary sputum soup on the basis of the above treatment. After two weeks of continuous treatment, the number and degree of fever and cough were reduced compared with the control group (P <0.05). After treatment, the serum hs-CRP and PCT levels decreased significantly (P <0.05), and more significantly in the observation group (P <0.05). Lu Weigang decreased the serum factors MCP-4, sIL-2R, D-dimer, IL-2 and IL-4 after treatment with sputum heat-choked lung and blood stasis^[33].^[34] In Qian Fuhong, 80 children with mycoplasma pneumonia with hot and humid lung type were randomly divided into control and treatment groups, with 40 cases each. The control group was treated with conventional anti-infection, and the treatment group added manna disinfection Dan to the treatment method of the control group. After 2 weeks of treatment, the TNF-, CRP, and IL-6 levels were found to be significantly decreased in the treatment group as compared with the control group, a word used in a person's name The fever, cough and sputum blood in the treatment group were significantly improved in the control group, indicating that the treatment of mycoplasma pneumonia in children with hot and humid lung type, which can significantly improve the clinical symptoms of children and promote rehabilitation, which is worthy of clinical promotion and application.

4. Summary

In recent years, the incidence of mycoplasma pneumonia continues to increase in recent years,

which is mostly seen in school-age children, and is easy to infect in a relatively closed environment, with increasing drug resistance and heavy harm degree. Therefore, it is very important to discuss the early and rapid detection of mycoplasma pneumonia methods and rational drug treatment. Although there are more clinical laboratory tests of mycoplasma pneumoniae, the method is not mature, and the positive rate of laboratory tests needs to be improved. In addition, there is no specification for the timing, dosage and course of glucocorticoids in children with severe mycoplasma pneumonia, and further large-scale multi-center clinical randomized controlled trial is needed to further determine. At present, integrated traditional Chinese and western medicine has been used to treat mycoplasma pneumonia in China. Although the effect is remarkable, the research sample size of children with mycoplasma pneumonia is small, and experimental data is lacking, and the scientific research design and experimental research lack strict objective basis and standards. Therefore, it is still necessary to strengthen and improve the basic practice of relevant TCM theories clinically, and large-scale clinical trials should be carried out to provide a sufficient and scientific basis for integrated traditional Chinese and western medicine for the treatment of mycoplasma pneumonia in children, and to promote the development of integrated traditional Chinese and western medicine therapy.

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