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THE ROLE OF CHLAMYDIA AND MYCOPLASMA INFECTION IN BRONCHOOBSTRUCTIVE SYNDROME IN CHILDREN

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Abstract:
This article provides an analysis of the literature data concerning the etiology, distribution and role of mycoplasma and chlamydial infection in broncho-obstructive syndrome in children. Diseases of the respiratory system are characterized by a variety of clinical and morphological manifestations, which is associated with the originality of the lung structure, age characteristics and a large number of etiological factors. Currently, intracellular chlamydial and mycoplasma infection has acquired particular medical and social significance due to the widespread occurrence, the ability to cause many human diseases, the tendency to chronicity, and the effect on the reproduction of the population [3,4,5,7,9].

Keywords: Obstructive bronchitis, mycoplasma infection, chlamydial infection, resistance, cytokines.

In recent years, in all countries of the world there has been a relentless increase in the number of inflammatory diseases of the upper and lower respiratory tract, which are largely determined by the diversification of the spectrum of significant pathogens and the increasing etiological importance of mycoplasma and chlamydial infections [18,20,22,23]. It has been studied that in the etiology of obstructive bronchitis in children, viruses are of dominant importance, such as: respiratory syncytial virus, parainfluenza virus, enteroviruses, influenza viruses, adeno- and rhinoviruses [7].
The etiological composition of obstructive bronchitis is infinitely complex, varies and largely depends on the age of the child and the time of year [10]. Despite the achievements of countless studies, worldwide practice today, highly scientific research continues, focused on the discovery of diverse aspects of the

etiopathogenesis of acute obstructive bronchitis [13,21]. In accordance with the information of foreign authors, it is noted that in infants, bronchial obstruction due to acute respiratory infections occurs in more than 50% of cases [13].

Sources on the current problem are just beginning to accumulate material [4]. A feature of mycoplasma nnfection is the cyclicality and frequency of increases in incidence every 4-7 years. Mycoplasma infection occupies an intermediate position between viruses, bacteria and protozoa; it is a membrane-associated microorganism, a unique membrane parasite [22,28]. By attaching itself to the cells of the respiratory epithelium, mycoplasma provides itself with all the necessary nutrients for existence and reproduction. In addition, it produces huge amounts of highly reactive oxygen species and free radicals of chemical compounds that cause damage to the ciliated epithelium of the upper respiratory tract [1,2,2,3,4625].

The study of clinical and serological variations in the course and outcomes of mixed forms of chlamydial-mycoplasma infections shows an extremely valuable and completely unexplored task. They are susceptible to persistence in the child's body, leading to a protracted course of the disease, paralyzing the mechanisms of mucociliary clearance, promoting bronchial hyperreactivity and worsening immunosuppression [20,21].

With atypical obstructive bronchitis, there is inflammatory-toxic swelling of the cellular interstitium without particularly strict localization, poor in cellular elements [7,8,12]. In young children, obstructive syndrome is considered a multifactorial pathology [1]. The reality that obstructive bronchitis develops against the background of acute respiratory viral infection, accompanied at the onset of the disease by catarrhal phenomena and symptoms of intoxication, confirms the critical importance of viral agents in the development of bronchial obstruction in the current nosology [9,11,12]. In infants, the causes of the risk of developing bronchial obstruction play an important role because they influence the course and outcome of the disease [9,11].

The immune mechanism is of great importance in the development of obstructive bronchitis in children [19]. It has been confirmed that more profound changes in the immune status are observed in patients with viral-bacterial associations. A connection has been established between chlamydial and mycoplasma infection of

children suffering from obstructive bronchitis and the development of immunosuppression, manifested in the inhibition of natural and acquired immune factors [20,21]. An atypical infection of the respiratory organs, most often occurs as a secondary complicated infection, as a result of a primary viral infection of the lower respiratory tract. One of the most common and significant symptoms of chlamydial mycoplasma lesions of the respiratory tract are respiratory manifestations, such as the picture of respiratory either chlamydia or mycoplasmosis [5,6,7,8,9,10,11,12,13].

Barrier protection of mucous membranes is achieved through colonization resistance, which is provided by a complex of local immune defense cosignators, including microbial adhesion inhibitors, antibodies, lactoferrin, lysozyme, biocidal and biostatic secretion products. The nature and improvement of the local inflammatory process mainly depend on the factors of colonization resistance - eubiosis of the mucous membranes of the respiratory tract, membranes of the oropharynx, intestines and their metabolic activity. As a result of the generalized influence of a variety of soluble microbial products and metabolites, a normally functioning epithelium produces a number of anti-inflammatory cytokines and mediators [14,15,16,17,18].

In the last decade, thanks to the development of new modern methods of serological diagnosis, there has been a noticeable pathomorphism of respiratory diseases [5,19,20,21,22]. Despite the wide variety of pathogenic microorganisms existing in nature, the share of chlamydia in the structure of infectious pathology is significant and is constantly growing - 30-48% [15,17,22,23]. In recent years, the role of chlamydia and mycoplasma in the respiratory pathology of adults and older children has significantly increased, but in children of the first years of life the data from recent years are quite contradictory [23,24]. To a certain extent, the present problem is due to the intracellular nature of the existence of atypical pathogens, due to which they are radically different from other bacteria and cause many problems in diagnosis and therapy for this pathology and in general [22,23]. With chlamydial infection, there is depletion or virality of cellular immunity reactions, a decrease in the level of leukocytes, an imbalance of lymphocyte subpopulations, a decrease in the ability of leukocytes to produce interferon, which contributes to the development

of "secondary immunodeficiency" and, as a consequence, a protracted course of the disease [12,14,16].

Of great importance in the pathogenesis of the disease is the fact that mycoplasmas and chlamydia are able to maintain viability in phagocytes (if phagocytosis has occurred) and cause a damaging effect on macrophages, as a result of which this serves as a source of disruption of their functions in the implementation of cellular unification necessary to excite a specific immune response. According to some literature data, mycoplasmas and chlamydia are capable of exerting a direct cytotoxic effect on lymphocytes, which is due to their ability to activate natural killer T cells [18,20,32,33].

In connection with the presented difficulties in the etiological interpretation of mycoplasma and chlamydial obstructive bronchitis in diagnosis, it seems important to study their anamnestic, clinical, laboratory and radiological features, that, taking into account the subsequent verification of the pathogen, this will contribute to a logical diagnosis with more rational antibacterial therapy for patients, including at the outpatient stage of observation [3,4,10,11,12,13].

Modern laboratory diagnosis of chlamydial and mycoplasma respiratory tract infections in children is quite complex; it requires the simultaneous detection of both antigen and antibodies, and monitoring of serological parameters over time. Simultaneously with the identification of chlamydial and mycoplasma infections in the body, it is imperative to assess the patient's immune status, since 70-80% of patients have changes in it, primarily related to the interferon and phagocytosis systems and the cellular link. In connection with the above incompletely studied studies, this pathology requires further research [1,6,7,8,9].

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