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NOSOCOMIAL RESPIRATORY INFECTIONS IN CHILDREN AND THE ROLE OF CORONAVIRUSES IN THEIR OCCURRENCE

Annotation: The purpose of this article was to generalize the clinical and epidemiological features of coronavirus infections according to scientific publications in order to focus the attention of specialists on the issues of polyetiology of these diseases.

Key words: children, nosocomial respiratory infections, coronavirus, immunity, etiology, clinical symptoms.

To date, more than 200 viruses that cause respiratory infections in humans have been discovered and studied. At the same time, the appearance of new pathogens is, firstly, a natural process that reflects the natural course of biological evolution, and, secondly, the result of the active development of molecular diagnostic methods. Most newly discovered pathogens are represented by viruses. In particular, it is due to the "newest" viruses that were discovered at the beginning of XX! centuries, and the etiological spectrum of acute respiratory viral infections (ARVI) has been expanded. Such pathogens include metapneumovirus and human coronavirus.

Nosocomial infections (NI) and the development of ways to combat them are one of the priority problems of modern medicine around the world, due to their wide spread, as well as the great socio-economic and medical damage caused to human health. In children's hospitals, NI develops in about every third or fourth hospitalized child, in newborn departments - often in every second.

It is believed that from 20 to 33% of all acute respiratory infections in the world can be caused by several etiological agents in one patient at once. Depending on the species diversity of the associates, their biological properties, the

peculiarities of the relationship with each other and with the macroorganism, it is possible to change the course of the infectious process (for example, towards the weighting of the clinic), or the development of an atypical clinical picture. In this regard, the study of the structure of the incidence of acute respiratory diseases is becoming extremely relevant.

Respiratory NI, unlike the above-mentioned groups of diseases, are not officially registered, but there are works concerning this pathology, especially since there is such a thing as hospital pneumonia, which occupies one of the leading places among the causes of deaths (up to 15%), and the importance of respiratory viruses as an etiological factor in their development it is large. In addition, viral pathogens themselves are often the cause of nosocomial respiratory infections, both sporadic cases and occurring in the form of outbreaks. In recent years, there have been foreign reports of NI caused by coronavirus.

The purpose of this study was to study the patterns of development of respiratory NI in children and to determine the significance of coronaviruses in their structure. In order to study the main methods of prevention of NI, catamnestic monitoring of the frequency of repeated acute respiratory infections that occurred in children discharged from the hospital at different times from admission was carried out, and the preventive effectiveness of arbidol, production was also studied. Long-term observations have shown that clinically pronounced forms of NI were recorded in all seasons, dominating in the cold season (on average in 10.5% of cases) among children hospitalized with various diseases, both somatic and infectious (Table 1). Their frequency was higher in children who were treated in the departments for respiratory infections (approximately every fifth child) and in the department of pathology of newborns (every second child), and some children, while in the hospital, were sick repeatedly.

The maximum number of cases of NI developed after the 5th day from the moment of hospitalization, especially if the child stayed in the hospital longer than the 8th day. Regardless of the profile of the department, diseases with upper

respiratory tract lesions prevailed in the structure of the NI, and complicated forms (otitis media, syphilis, pneumonia) were more often observed in people with primary intestinal infections or their combination with respiratory infections.

The number of superinfections significantly increased with crowding of hospitalized patients in wards and non-compliance with the rules of the epidermis, including when playing and walking in the corridors, as well as when performing consultations and taking materials for laboratory studies in crowded areas of children. The frequency of nosocomial infections in general depended on the intensity of the spread of an infectious agent among the population of the city. Thus, outbreaks of nosocomial influenza infection were observed only during the epidemic rise of influenza and were completely absent during the interepidemic period. Clinical manifestations of superinfection were different: from asymptomatic forms to pronounced, with significant signs of intoxication, which, like complications, were more often observed in intra-hospital outbreaks of one or another etiology, especially adenovirus. The frequency of bronchopulmonary lesions in the observed NI was approximately the same as in the primary infection (bronchitis in about every 3-4 children, pneumonia in 6-15% of cases).

Coronavirus NI mainly proceeded in mild and moderate form, without complications. Its clinical manifestations began with the appearance of catarrhal or dyspeptic symptoms against a background of subfebrile body temperature. Intestinal syndrome was observed quite often: in children of the 1st year of life - in 75% of cases, at an older age - in 50%, while nausea, repeated vomiting and enteric stools were noted for 2-5 days. However, in every fourth child, the disease was accompanied by high fever and severe intoxication (severe anxiety, repeated vomiting), and in 25% of cases, IBI caused by coronaviruses was asymptomatic, detected only in the laboratory, or with minimal clinical manifestations. It should be noted that the results of serological and bacteriological examination of these children for pathogenic bacterial intestinal flora and rotaviruses were negative, and laboratory parameters (hematological and biochemical) in dynamics corresponded to the severity of the disease.

It was shown that the severity and severity of the clinical symptoms of NI, including coronavirus etiology, depended on the level of the corresponding specific antibodies in the blood and secretions of the upper respiratory tract. Thus, the presence of protective titers of specific antibodies, especially secretory ones, as a rule, prevented the occurrence or contributed to an easier course of infection. The most severe forms of NI of any etiology were observed in children with a low content of antibodies, especially secretory ones, which normally completely or partially neutralize respiratory infections in the nasopharynx, which reduces both the risk of each individual's disease and its epidemiological danger to others.

The study of the main methods of prevention of NI was carried out. It turned out that an early discharge, contrary to the data of some authors, preventing the emergence of a new infection for the children remaining in the ward, does not prevent the development of superinfection in the child; he gets sick at home and very often re-enters the hospital. Much less often, superinfections occurred in children who were in separate boxes, which really is, in compliance with all the requirements of the sanitary regime, the most radical preventive measure.

In addition, it has been shown that the development of clinically pronounced forms of nosocomial infections prevents the use of immunocorrectors. The inclusion in therapy of various forms of acute respiratory infections, including complicated ones, arbidol, chigain, grippferon or phi-tolone contributes to the increase of nonspecific resistance in children and prevents the occurrence of superinfections in them. Thus, nosocomial respiratory infections are a serious problem for pediatric hospitals, especially for departments of pathology of newborns and respiratory infections. Coronavirus infection occupies one of the main places in the etiological structure of NI, which very often occurs with intestinal syndrome, although other respiratory pathogens may be the cause of re-infection in the hospital.

It was shown that coronavirus was the most frequent (in 22% of cases) causative agent of respiratory NI, but the most severe NI, including those with an unfavorable outcome, are usually caused by adenovirus (mixed) and gram-negative

bacterial flora (Klebsiella pneumonia, Acinebacter, Pseudomonas aeruginosa). The correlative relationship between the severity of clinical manifestations of NI and the activity of factors of specific and nonspecific protection of the child's body has been proved. Compliance with the requirements of the sanitary regime and the use of immunomodulators contributed to the decrease in the frequency of NI. The clinical characteristics of coronavirus NI are presented.

Clinical manifestations of superinfectious acute respiratory infections have a different character, which, although determined by their etiology, but it largely depends on the state of specific and non-specific protection of the child. The most severe forms of NI, often with an unfavorable outcome, develop with the participation of adenovirus and gram-negative hospital bacterial flora. The reduction in the frequency of superinfections is facilitated by taking drugs with immunocorrecting and preventive antiviral properties, as well as old and well-proven methods of preventing NI, such as hospitalization of children in boxes and staying there until discharge, as well as maximum isolation of patients with all manipulations, including diagnostic ones, in the box, subject to all the requirements of the sanitary regime.

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