

## ЭПИДЕМИОЛОГИЧЕСКИЕ АСПЕКТЫ ПНЕВМОКОККОВОЙ ИНФЕКЦИИ.

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В статье рассматриваются эпидемиологические аспекты пневмококковой инфекции, Во всем мире по количеству летальных исходов среди инфекций, управляемых иммунопрофилактикой, заболевания пневмококковой этиологии занимают лидирующие позиции [185, 186]. По данным экспертов Всемирной организации здравоохранения (ВОЗ) пневмококковая инфекция (ПИ) ежегодно уносит жизни 1,6 млн человек. Около 1 млн из них составляют дети, 40% из которых - дети первых 5 лет жизни.

Ключевые слова: дети, кишечные инфекции, сальмонеллез.

" EPIDEMIOLOGICAL ASPECTS OF PNEUMOCOCCAL INFECTION.

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The article deals with the epidemiological aspects of pneumococcal infection. All over the world, in terms of the number of deaths among infections controlled by immunoprophylaxis, diseases of pneumococcal etiology occupy a leading position [185, 186]. According to experts from the World Health Organization (WHO), pneumococcal infection (PI) kills 1.6 million people every year. About 1 million of them are children, 40% of which are children of the first 5 years of life.

Key words: children, intestinal infections, salmonellosis

The maximum risk of developing PI exists in children under 5 years of age and adults over 65 years of age. Every year in the world pneumococcal pneumonia occurs in 39 thousand children, pneumococcal otitis - in 713 thousand, and pneumococcal bacteremia - in 3 thousand [144, 182]. There are data on the incidence of PI only from separately organized studies, since this infection is not subject to mandatory registration and is not monitored in the regions [5, 72, 85, 105]. Only certain forms of IP are subject to mandatory registration. In 2011, according to the order of Rosstat dated December 31, 2010 No. 482, community-acquired pneumonia (CAP) was introduced into forms 1 and 2 of the state statistical reporting "Information on infectious and parasitic diseases". The insufficient level of microbiological confirmation of the diagnoses of diseases in various nosological forms of PI does not give an accurate idea of the breadth of its distribution.

In the development of the epidemic process of PI, social factors play an important role, among which a special place is occupied by the overcrowding of the team, which determines the increase in the number of carriers [17]. According to R.S. Kozlova, the proportion of *S. pneumoniae* carriers among organized children in preschool educational institutions (DOE) ranges from 25 to 72.2%, and in boarding schools - from 11.1 to 86.7% [30]. Morbidity in various nosological forms of PI

in risk groups exceeds the indicators in the population as a whole by 5-100 times. These groups include children under 2 years of age, persons over 65 years of age, patients with a number of chronic diseases of the respiratory system, cardiovascular system, liver, diabetes mellitus, with functional or anatomical asplenia, immunodeficiency states, regardless of age, medical workers [16, 46, 84].

The ubiquity of *Streptococcus pneumoniae* (*S. pneumoniae*, pneumococcus) is associated with a large variety of serotypes (more than 90) [25, 40]. The revealed resistance of isolated strains of pneumococcus to antibiotics: lincosamides (clindamycin) - 55.9%, macrolides (erythromycin) - 72.9% and tetracycline - 45.8%, as well as to chlorine-containing disinfectants - up to 34.7%, made it possible, by

means of correction disinfection regime and antimicrobial therapy to increase the effectiveness of preventive, anti-epidemic and therapeutic measures in medical organizations and organized teams (act of implementation of the KGBUZ "Specialized Children's Home, Barnaul", 2019). Vaccination against PI allowed to reduce the incidence of children with inflammatory pathology of the respiratory and ENT organs (in a closed children's team by 5.8 times ( $p < 0.05$ ), in children's medical organizations in Barnaul, the vaccination efficiency index was 1.6) and the volume ABP for the treatment of these nosological forms (by 52.7%). The death rate from pneumonia has been steadily increasing in recent years [160, 176]. In Russia, pneumonia ranks 6th among all causes of mortality, including the leading position among infectious pathologies [28]. Young children with pneumococcal pneumonia tend to develop pulmonary empyema and destruction, which increase the risk of an adverse outcome, more often than with other forms of pneumonia. And in elderly patients, this risk is higher by 5-7% than in young ones, especially in those staying in geriatric centers and nursing homes, where the mortality rate from pneumonia reaches 20-50% [30, 62, 149, 151]. Therefore, in the Russian Federation, mortality from pneumonia is extremely high among children of the 1st year of life (37 per 100 thousand of the population), patients over 55 years of age (48.2 per 100 thousand of the population) and the elderly (78.5 per 100 thousand of the population) [29, 87, 187]. Pneumonia with bacteremia is especially severe, but mucosal (non-bacteremic) pneumonias account for 60-80% of all cases of pneumococcal pneumonia [90, 164]. Meningitis as one of the clinical forms of PI worries the whole world, as it is the cause of a high level of disability in children under 5 years of age and more than 60 thousand deaths annually [102, 115]. In Europe, the incidence of pneumococcal meningitis (PM) in children under 2 years of age ranges from 5 to 10 cases per 100 thousand of the corresponding population, in the Russian Federation this indicator among children under 5 years of age is on average 8 per 100 thousand [16]. Depending on the clinical forms, age and

etiology, mortality in bacterial meningitis (BM) in developed countries is from 3 to 19%, in developing countries - 37-69% [3, 30, 35]. With meningitis of pneumococcal etiology, lethality is about 15%, which exceeds the same indicator for meningococcal meningitis by 5-7 times, and with meningitis of hemophilic type b etiology - by 2-4 times [18, 124].

The ratio of etiological pathogens in relation to meningitis is not always the same and depends on climatic conditions, the level of immunoprophylaxis, the territory, namely, on the intensity of the epidemiological situation [25, 114, 146]. For example, in the United States in 1986, the etiological structure of the main pathogens of bacterial meningitis was represented by meningococci - 14%, pneumococci - 18% and Haemophilus influenzae type b - 45%. After the start of vaccination against Haemophilus influenza type b, 10 years later, pneumococci took the first place, accounting for 30-50% of all BM pathogens [112, 128]. According to the data of the Reference Center for monitoring of purulent bacterial meningitis (GBM) and GFMI organized in 2014 at the Central Research Institute of Epidemiology (TsNIIIE, Moscow), which collects information on these diseases on a voluntary basis from the subjects of the Russian Federation, in Russia in In the etiological structure of GBM, Neisseria meningitides ranks first, S. pneumonia ranks second, and Haemophilus influenza type b ranks third [36, 94, 105].

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