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EPIDEMIOLOGICAL FEATURES OF DIPHTHERIA IN INDIA

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Relevance. The epidemiology of diphtheria in modern conditions is closely interrelated with the epidemiological surveillance system, which will include the constant collection of information about the epidemic process and its factors, the analysis of the information received, the development of plans for preventive and anti-epidemic measures. Routine vaccination of children has practically eliminated diphtheria in most industrialized countries, and in conditions of epidemic well-being, doctors have lost vigilance against this infection. However, it is worth remembering that diphtheria has a ubiquitous distribution and there are territories endemic to this disease in the world. The incidence rate in individual countries varies significantly and depends on the geographical area, epidemiological surveillance, the quality of vaccination, and social conditions. About 5000-9000 cases of diphtheria are registered in the world every year. Up to 10% of patients die. For example, the total number of cases of diphtheria in the world in 2021 was estimated at 8328 cases. The top five countries (Ethiopia, India, Yemen, Indonesia, Afghanistan) accounted for 93,53% of diphtheria cases.

Aim: to study the epidemiological parameters of diphtheria in India and to assess the possibilities of using effective preventive measures.

Materials and methods. The material for studying the long-term dynamics of the incidence of diphtheria was data on cases of this infection registered in India for the period from 2000 to 2021 and published on the official World Health Organization (WHO) website in the Global Health Observatory data repository. For a frequency analysis of the level of vaccination coverage, official data from the WHO/UNICEF Annual Immunization Reporting (JRF) are used. Statistical processing of the obtained data was carried out using computer programs: Microsoft Excel (formation and statistical processing of spreadsheets, parabola equation of the first order, diagram construction), IBM SPSS Statistics 19.0.

Results and their discussion. When analyzing the long-term dynamics of the intensity of the epidemic process of diphtheria in the Indian population for the period 2000-2021, it was found that the incidence was unevenly distributed over the years and ranged from 0,13 in 2021 to 0,74 in 2004 per 100000. The maximum and minimum values differed 5,7 times. The average long-term incidence rate was 0,38 cases per 100000. The long-term dynamics of morbidity was characterized by a moderate tendency to decrease the intensity of the epidemic process, which was described by the equation $y = -0,0067x + 0,4573$. The average annual rate of decline of indicators was 3,5% ($p < 0,05$). The target coverage rate of the child population, which allows to eliminate the circulation of the pathogen, is 95-97%. When analyzing the level of vaccination coverage in dynamics over 22 years, an insufficient level of vaccination coverage of the population was established. During the period 2000-2007, the coverage rate of three doses of diphtheria vaccine was 58-35%, which determined the incidence from 0,32 to 0,74 cases per 100000. From 2008 to 2018, there was a tendency to increase the coverage of vaccinations from 70 to 99%, but the incidence rate was in the range of 0,33-0,66 cases per 100000.

Conclusion: the average annual incidence rate was 0,38 cases per 100000 populations, which makes it possible to classify India as endemic territories. Insufficient vaccination coverage of the child population with three doses of the vaccine has been established. In order to control the epidemic process, it is necessary to ensure the fulfillment of the targets for vaccination coverage of the child population (coverage of 97%), strengthen epidemiological surveillance of diphtheria and the implementation of a set of anti-epidemic measures in the focus, with vaccination of contact persons in the focus.