World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-31, February 2024
ISSN: 2749-3644

THE EPIDEMIOLOGICAL SITUATION OF MENINGOCOCCAL INFECTION

Mustanov Azamat Yunusovich., Matnazarova Gulbahor Sultanovna., Khamzayeva Nilufar Toshtemirovna., Kurbaniyazova Malika Oralbaevna.
Tashkent Medical Academy, Medical Prevention Lecturer, Department of Epidemiology

Article history:

Received: December 20th 2023
Accepted: January 10th 2024
Published: February 20th 2024

Abstract:

The global decline in the incidence rate of meningococcal infection, which is observed in the last decade, does not exclude the possibility of new outbreaks, epidemics and pandemics. The previous pandemic of meningococcal infection in the world was noted in the 70s. last century, when the incidence rate reached 16-17 people per 100 thousand people. Epidemics of meningococcal infection occur unexpectedly and still cannot be predicted. Currently, MI cases are recorded in more than 150 countries of the world, and Uzbekistan is one of them. The article presents long-term observations (analysis of the age structure of the incidence of meningococcal infection, a monthly analysis of the incidence in the city of Tashkent) and some epidemiological features of meningococcal infection in the world and in Uzbekistan

Keywords: causative agent of meningococcal infection, epidemiology, source of infection, frequency of epidemic waves, generalized and localized forms of meningococcal infection, long-term dynamics of the incidence, age structure of the population, vaccine prevention.

The variety of forms, the severity and severity of the course of meningitis, the tendency to epidemic outbreaks, the likelihood of an unfavorable outcome pose complex challenges to practical health care to combat these infections. The previous pandemic of meningococcal infection in the world was noted in the 70s. last century, when the incidence rate reached 16-17 people per 100 thousand. The global decrease in the incidence of MI observed in the last decade does not exclude the possibility of new outbreaks, epidemics and pandemics. A striking example of an unexpected explosive activation of the epidemic process was the outbreak of MI in 2000 in Saudi Arabia among Muslims who performed the Hajj, which within a short period of time spread to most of the countries of Western Europe, America, Asia, primarily to France and Great Britain. Currently, MI cases are registered in more than 150 countries around the world. The highest incidence rates of MI are noted on the African continent, where there is a hyperendemic zone - the so-called meningitis belt, stretching south of the Sahara, from Senegal in the west to Ethiopia in the east and including 14 countries. Meningococcal disease is a serious public health problem in most countries of the world, which is associated with a high mortality and disability rate of people who have had the disease. Before the introduction of antibiotics, mortality among infected people with a generalized form of meningococcal infection (MI) reached 70 - 80%. The use of antibiotics in the treatment of MI reduced mortality by up to 15%. Among those who survived, about 20% of people have serious complications, the most severe of which are epilepsy, mental retardation and deafness. According to the WHO classification, 15 European countries belong to countries with an average incidence of MI (drawn to the recent increase in the proportion of diseases caused by meningococcus, a rare serogroup W135. Since 2000, the situation has changed dramatically. In Africa, 32 to 56% of cases are caused by meningococcus W135. Strains of the meningococcal serogroup W135 have caused serious outbreaks in Taiwan, South Africa, China, Brazil, Argentina, Chile and the United Kingdom. The problem of increasing the incidence of W (GFMI) also affected Russia (RF). Since 2013, there has been an annual increase in the number of MI cases caused by strains of this serogroup. If in 2010 in the Russian Federation the share of meningococcus W135 accounted for 3%, then in 2018 - 30% of cases of meningococcal infection and the increase in the incidence caused by meningococcus W135 continues. It should be noted that isolated strains of meningococcus serogroup W135 in the Russian Federation belong to two new, previously unseen strains that have increased virulence, that is, they are mutants against which there is no population immunity, have high resistance to some antibiotics, and tend to spread rapidly and cause high mortality, mainly among the adult population. The aim of the research was to study the level and dynamics of the incidence of meningococcal infection, the serogroup landscape of the pathogen, the characteristics of the sex and age structure of patients, clinical forms of meningococcal infection at the present stage. The materials and research methods. For the epidemiological analysis, statistical data on the

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-31, February 2024
ISSN: 2749-3644

incidence of meningococcal infection and materials of the Service of Sanitary and Epidemiological Welfare and Public Health of the Republic of Uzbekistan and the city of Tashkent. Were used. Epidemiological research methods were used, in particular, operational and retrospective epidemiological methods. The research results and discussion. The last epidemic wave of meningococcal infection in Uzbekistan began in 1971, when the intensive rate in the republic rose to 1.2; in 1972 - up to 20.5; in 1973 - 13.9; in 1974 - 10.8; in 1975 - 12.1; in 1976 - 8.4; in 1977 - 5.8. The rise in the incidence began mainly in organized (preschool, school institutions, vocational schools, student dormitories). An increase in the number of patients with meningococcal infection registered during 1971-1977 was noted in all regions of the republic, but the highest incidence rates were in Tashkent, Samarkand, Andijan, Bukhara and Khorezm regions. Monthly analysis of the incidence in the city of Tashkent for 6 years showed that cases of the disease were recorded throughout the year, but the seasonal rise was determined from March, reaching a maximum in April - May from subsequent decline in June. For the period from January to December 2019, 149 cases of meningococcal infection were registered in the republic: of which the largest number of patients with MI (78.0%) fell on residents of the city of Tashkent (114 cases). 24 cases of MI were registered in Tashkent region, 3 each in Kashkadarya region and the Republic of Karakalpakstan, 2 in Namangan region and 1 each in Andijan, Bukhara and Jizzakh regions. The diagnosis was confirmed by the laboratory, by isolating the culture of meningococcus serogroup A. Moreover, the incidence of MI in the districts of the city of Tashkent was unevenly distributed. The largest percentage of cases was noted in the Shaikhantakhur district (22 cases - 19.3%), then in Uchtepa - 20 (17.5%), Almazar - 18 (15.8%), Yashnabad 13 (11.4%), Mirzo-Ulugbek - 12 (10.5%), in Yunus-Abad - 11 (9.6%), Chilanzar - 9 (7.9%), Yakkasaray and Sergeli - 3 (2.6%), and in Mirabad and Bektemir districts - 1 case (0.9%). We are currently seeing some trend towards the spread of the disease. If in previous years the indicator of infectious morbidity of MI in the city of Tashkent was 0.08; 0.04; 0.13, then in 2019 it is 4.5 per 100,000 population. All MI cases in 2019 were caused by Neisseria meningitides serogroup A and in 1 case - meningococcus serogroup W135, which turned out to be an imported case from the Russian Federation. In this connection, it is necessary to take into account that migration processes both among citizens of Uzbekistan and the arrival of citizens from other countries unfavorable in terms of the incidence of meningococcal infection, can have a negative impact on the epidemiological situation in the republic. In the long years of prosperity (50-60s), meningococcus of group A was isolated from rare patients, and then the same meningococcus caused an epidemic [19]. Currently, in clinical observation, data on increased virulence and high manifestation have been obtained, since representatives of serogroup A more often cause generalized forms of meningococcal infection. Thus, the analysis of cases of GFMI showed that it accounts for 95.6% (of the total number of infected persons with MI in the city of Tashkent), and localized ones - 4.4% (meningococcal nasopharyngitis). The share of GFMI increased, the morbidity rate of GFMI was 4.3 per 100,000 population. The decline in the incidence of MI in the interepidemic period, which lasts more than 30 years in Uzbekistan, has led to a decrease in the alertness of medical workers regarding this infection. A significant part of the patients were sent to the hospital after 12 hours from the onset of the disease and were on outpatient treatment for 1-2 days

CONCLUSIONS. As shown by long-term observations, modern meningococcal infection in Uzbekistan has the following epidemiological features: - MI is observed in all age groups of patients (the age range varied from 40 days to 76 years). The peak of the disease occurred in the months of March-April, however, there is a year-round incidence of meningococcal infection; - in the event of sporadic cases of meningococcal infection, serogroup A meningococci prevail; 78.0% of those with MI are residents of the city of Tashkent; - children aged 0 to 5 are much more common (17.3% of the total number of hospitalized), but their share has decreased compared to previous decades; - there is "growing up" in the age structure of morbidity, i.e. there is currently an increase in the incidence among adults (20 years and older). The largest number of patients were persons aged 20 years. Persons from 16 to 20 years old accounted for 15.7%, and from 21 to 25 years old - 16.5%. - as for the sex of those with MI, 74.0% were males, and 26.0% were females; - it is necessary to monitor MI strains in order to prevent the emergence of new highly virulent strains of meningococci on the territory of the republic; - It is necessary to make a decision to increase the coverage of the population with vaccinations to prevent a further increase in the incidence of meningococcal infection in Uzbekistan.

REFERENCES:

1. Meningococcal vaccines: polysaccharide and polysaccharide conjugate vaccines. Wkly Epidemiol Rec. 2002 Oct 4; 77 (40):331-9.
2. Jafri RZ, Ali A. Messionnier NE, Tevi-Benissan C, Durrheim D, Eskola J, et al. Global epidemiology

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-31, February 2024
ISSN: 2749-3644

of invasive meningococcal disease. Popul Health Metr. 2013 Sep 10; 11(1):17. doi: 10.1186/1478-7954-11-17.
3. Imrey PB, Jackson LA, Ludwinski Ph. Outbreak of serogroup C meningococcal disease associated with campus bar patronage. Am J Epidemiol. 1996;143(6):624-30
4. Bryantseva E. V. et al. Measles outbreak in the Republic of Uzbekistan //Journal of Coastal Life Medicine. – 2023. – Т. 11. – С. 2230-2235.
5. Эрматов Н., Мустанов А. Анализ результатов гигиенической оценки случаев пищевых отравлений //Models and methods in modern science. – 2022. – Т. 1. – №. 18. – С. 32-34.
6. Мустанов А. и др. Менингококк инфекциясининг турли клиник шаклларда кечишида ўзига хос хусусиятлари. – Международная научно-практическая конференция" Актуальные проблемы инфектологии, эпидемиологии и паразитологии", 2022.
7. Мустанов Ф., Матназарова Г., Брянцева Т. Н. Менингококк инфекцияси билан касалланишнинг ўзига хос бўлган даврийлиги : дис. – 2022.
8. Azamat M., Kumush G. Ozbekistonda meningokokk infersiyaning zamonoviy epidemiologik xususiyatlari. – International Conference on learning and teaching, 2022.
9. Миртазаев О. М. и др. Менингококк инфекцияси билан касалланишнинг ўзига хос хусусиятлари. – 2022.
10. Мустанов А. Ю., Матназарова Г. С., Брянцева Е. В. Менингококк инфекциясининг эпидемиологияси ва унинг профилактикғчора тадбирларини такомиллаштириш : дис. – Тошкент тиббиёт академиясига 100 йил, 2022.
11. Мустанов А., Брянцева Е., Матназарова Г. Менингококк инфекциясининг эпидемиологик хусусиятлари. – 2021.
12. Мустанов А., Брянцева Е., Матназарова Г. Менингококк инфекциясидан ўлим ва ногиронлик холатларининг келиб чиқиш сабаблари : дис. – Вестник Ташкентской медицинской академии, 2021.
13. Мустанов А. Ю., Брянцева Е. В., Матназарова Г. С. Менингококк инфекциясига қарши вакцина чора-тадбирларни ташкиллаштириш //ташкентская медицинская академия кафедра эпидемиологии казахский национальный медицинский университет имени сд асфендиярова. – С. 52.
14. Мустанов А. Ю., Брянцева Е. В., Матназарова Г. С. Менингококкли инфекцияси билан касалланишнинг кўп йиллик динамикаси ва эпидемиологик хусусиятлари //ташкентская медицинская академия кафедра эпидемиологии казахский национальный медицинский университет имени сд асфендиярова. – С. 46.
15. Миртазаев О. М. и др. Некоторые эпидемиологические особенности менингококковой инфекции в Узбекистане. – 2020.
16. Мустанов А. Абу Али Ибн синонинг табобатга қўшган ҳиссаси : дис. – Tibbiy ta'limda etika va integratsiya masalalari, 2021.
17. Matnazarova G. S. et al. Epidemiological features of tuberculosis in the republic of karakalpakstan in the period 2011-2020 //World Bulletin of Public Health. – 2023. – Т. 21. – С. 32-36.
18. Matnazarova G. et al. The new coronavirus-COVID-19 in Uzbekistan //International Journal of Pharmaceutical Research (09752366). – 2020. – Т. 12. – №. 4.
19. Toshtemirovna X. N. et al. COVID-19 infeksiyasining epidemiologik raqamli ko `rsatkichi //iqro. – 2023. – Т. 3. – №. 1. – С. 160-164.
20. Хамзаева Н. Т., Матназарова Г. С. Covid-19 инфекциясидан химояланишда шахсий ҳимоя ва антисептик воситаларнинг аҳамияти //pedagogik islohotlar va ularning yechimlari. – 2023. – Т. 1. – №. 2. – С. 80-82.