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DYNAMICS OF PREVALENCE OF HIV-INFECTION AMONG PREGNANT WOMEN IN THE REPUBLIC OF KARAKALPAKSTAN

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Abstract. A comprehensive retrospective analysis of the statistical data of pregnancies of HIV-infected women who were under dispensary observation at the Republican Center for the Prevention and Control of AIDS of the MZRK and infectious diseases in the period from 2011 to 2021 was carried out. The Turtkul region has the highest incidence of HIV infection in the Republic of Karakalpakstan. The proportion of HIV-infected pregnant women is higher in rural areas. According to the results of a comparative analysis of women, HIV was detected in pregnant women aged 25-29 years. The main route of infection of pregnant women with HIV was through sexual contact. A comparative analysis of testing sexual partners for HIV revealed a positive result of 51.1%. A total of 55.6% of pregnant women diagnosed with HIV were infected by cesarean section and 1.1% by vertical route, of which 8.0% died after childbirth. 13.6% of HIV-infected women had abortions, and 29.5% did not had data.

Keywords: sentinel epidemiological surveillance, abortion, sexual partner, comparative, pregnant women, caesarean section, pregnancy, incidence, morbidity, prevention.

Purpose of the study: To study the dynamics of the prevalence of HIV infection among pregnant women in the Republic of Karakalpakstan.

Materials and methods: for the prepare this study was used analysis of the results of the epidemiological process of HIV - infection among pregnant women for 2011 - 2021. in the Republic of Karakalpakstan and also official statistical, reporting data of the AIDS Control Center of the Republic of Karakalpakstan.

Relevance HIV remains a major global public health problem, with 36.3 million [27.2-47.8 million] deaths to date. There is no cure for HIV infection. However, with increased access to effective prevention, diagnosis and treatment of HIV and opportunistic infections, as well as patient care, HIV infection has moved into the category of treatable chronic diseases, and HIV-infected people can live long and healthy lives. As of the end of 2020 Globally, there were an estimated 37.7 million [30.2–45.1 million] people living with HIV infection, more than two-thirds of whom (25.4 million) lived in the WHO African Region. In 2020 680 000 [480 000-1.0 million] people died from HIV-related causes and 1.5 million [1.0-2.0 million] people became infected with HIV. To achieve the new 95-95-95 targets proposed by UNAIDS, efforts must be redoubled to avert a worst-case scenario in which excess HIV-related deaths in sub-Saharan Africa reach half a million and HIV infection rates rise by as a result of the disruption in HIV care during the COVID -19 pandemic and

the slowdown in the public health response to HIV [1]. In Russia, the first cases of HIV infection were detected in 1987. According to official data, as of September 30, 2021, 1,132,087 Russians with laboratory-confirmed HIV lived in Russia, excluding 413,930 people who died during the entire observation period (26.8%). The ministry also noted that the prevalence of HIV infection as of September 30, 2021 amounted to 774.5 per 100 thousand inhabitants of Russia, that is, 0.8% of the total population of the country and 1.5% of the population aged 15 to 49 years old that are lived with HIV.

In the first decade of the 21st century, about 10 million migrants arrived in Russia every year. To reduce the spread of the virus in this environment, the authorities launched 41 HIV prevention programs and trained employees of the Federal Migration Service [2].

A huge problem is that most people become infected from virus carriers who are in the so-called “serological window”, when a person is already infected, but the tests are still negative. So far, the latter factor has not been excluded [6]. The methods of penetration of the virus from mother to child are known: transplacental (antenatal), contact (contact with maternal blood and vaginal mucosa), occurring intranatally and through breastfeeding. The maximum likelihood of HIV transmission from mother to child occurs during childbirth, when the fetus passes through the birth canal, comes into contact with infected maternal blood and genital mucosa [3]. The factors that contribute to the transmission of the virus from mother to child are quite complex and diverse. The transmission of infection is facilitated by various pathological conditions and the state of health of the mother and fetus as a whole, a violation of the protective function of the placenta, and the characteristics of the course of childbirth. The use of drugs, alcohol, promiscuity during pregnancy, malnutrition [5] negatively affect. The use of chemoprophylaxis in the mother during pregnancy, pregnancy and childbirth, in the newborn after childbirth reduces the vertical transmission route [7]. Experience with the three-stage use of antiretroviral drugs (to a woman during pregnancy, during childbirth and to a child) has shown the possibility of a significant reduction in the risk of mother-to-child transmission of HIV (less than 2%). The advent of ART changed the course of HIV infection and led to HIV becoming a chronic, controllable disease. The main goal of ART is to preserve the quality of life and maximize its duration [8].

Antiretroviral therapy, aimed at inhibiting HIV replication, contributes to the partial restoration or activation of the immune system. In a number of patients with severe immunosuppression, this may be accompanied by a risk of developing an immune reconstitution syndrome with the manifestation of opportunistic and secondary diseases, leading to a deterioration in the general condition and death of the patient [4].

Results and discussion: In the Republic of Karakalpakstan, the incidence of HIV infection was first detected in 2003, and among pregnant women - in 2011, and in 2004-2008. prevalence among the population was sporadic (0.18), and since 2009 (1.0) the incidence has increased significantly. When analyzing the incidence of HIV infection in the Republic of Karakalpakstan in 2011-2021, it was 1.1 per 100

thousand population in 2011, 2.3 - in 2012, 3.3 - in 2013, 3.5 - in 2014, 6.4 - in 2015, 5.9 - in 2016, 5.6 - in 2017, 7.1 - in 2018, 6.0 - in 2019, 4.4 - in 2020 and 2021 it was - 5.1.

Based on the results of the analysis of data on testing pregnant women for HIV infection for 2011-2021, the following picture was revealed: in 2011 - 36,045 people; in 2012 - 36677; in 2013 - 39726; in 2014 - 41562; in 2015 - 41772; in 2016 - 39551; in 2017 - 38825; in 2018 - 41961; in 2019 - 41867; in 2020 - 39842 and in 2021 - 42910 women, respectively.

An analysis of the proportion of newly infected with HIV among pregnant women in the overall incidence of HIV infection showed (Table-1.) that the highest rate was recorded in 2014. It was found that the incidence rates are not the same over the years, if in 2019 HIV infection decreased by 2.6%, then in 2021 this figure increased to 9.1%.

Table 1.

The proportion of newly diagnosed cases of HIV infection among pregnant women in the structure of the overall incidence of HIV infection

Yors	Total HIV-infected persons (100 thousand population)	of which pregnant women (%)
2011	1.1	5.5
2012	2.3	4.4
2013	3.3	8.7
2014	3.5	13.5
2015	6.4	7.8
2016	5.9	8.4
2017	5.6	5.7
2018	7.1	3.0
2019	6.0	2.6
2020	4.4	5.9
2021	5.1	9.1

As of January 1, 2022, with a comparative analysis by districts, the highest rate of the total number of HIV-infected people (per 100,000 population) was recorded in the Turtkul district (144.4). The following administrative territories, as Beruni (78.1) and Ellikkala (41.0), Nukus (31.1), Bozatau (28.9), Khodjeyli (27.2), Amu Darya (24.3), Takhiatash (24.2), Kanlykul (19.7), Nukus region (18.2), Kungrad (13.2), Takhtakupyr (13.2), Chimbay (12.1), Kegeyli (8.3), Karauzyak (7.3), Muynak (3.7) and Shumanai (1.8) districts, the intensive indicator was 2 times and much less.

The results of a comparative analysis of pregnant women diagnosed with HIV in the Republic of Karakalpakstan for 2011-2021 the number of cases were not the same: 5.5% - in 2011, 4.4% - in 2012, 8.7% - in 2013, 13.5% - in 2014, 7.8% - in 2015, 8.4% - in 2016, 4%, 5.7% - in 2017, 3.0% - in 2018, 2.6% - in 2019, 5, 9% - in 2020 and 9.1% - in 2021.

According to the results of the analysis of the transmission route among HIV-infected pregnant women in the Republic of Karakalpakstan for 2011-2021, the proportion of sexually transmitted infections increased (85.2%). An epidemiological investigation revealed that 4.9% were through the parenteral route and 3.2% of cases, the route of transmission was unknown, the rest of the pregnant women were registered among women infected with HIV infection.

A comparative analysis of data on the place of residence of HIV-infected pregnant women showed that 60.6% lived in rural areas and 39.3% - in cities.

When analyzing the materials according to the data of the sexual partners of pregnant women, it was confirmed that among those living in the family, 51.1% of the sexual partners were HIV positive. 31.8% were HIV negative, 2.2% were divorced, and 1.1% had unknown sexual partners, in 2.2% of cases the sexual partners were foreign citizens and 9% had no information about sexual partners.

Analysis of statistical data on the age composition of HIV-infected pregnant women showed that 25% were aged 18-24 years, 29.5% aged 25-29 years, 30.6% - aged 30-34 years, 13, 6% at the age of 35-39 years, the proportion of 40-year-old pregnant women was 1.1%.

Consequently, the majority of pregnant women diagnosed with HIV are in the active population of reproductive age. This means that the disease is more common among the working population.

In total, 55.6% of pregnant women diagnosed with HIV were infected by caesarean section and 1.1% by vertical route, of which 8.0% died after childbirth. 13.6% of HIV-infected women had abortions, and 29.5% did not have data.

The level of detection of HIV infection among pregnant women gradually increases over the years. Therefore, we analyze the dynamics of incidence based on the results of serological laboratory tests. These analyzes will help to study the epidemic situation and coordinate preventive and anti-epidemic measures to prevent the spread of HIV/AIDS among the general population.

Conclusions: Based on the analysis of HIV infection rates among pregnant women in the Republic of Karakalpakstan in 2011-2021. the following conclusions can be drawn:

1. The Turtkul region has the highest incidence of HIV infection in the Republic of Karakalpakstan.
2. The proportion of HIV-infected pregnant women is higher in rural areas.
3. According to the results of a comparative analysis of the age composition of women, HIV was detected in pregnant women aged 25-29 years.
4. The main route of HIV infection in pregnant women was through sexual contact.
5. A comparative analysis of testing sexual partners for HIV revealed a positive result in 51.1%.

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