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MODERN OPPORTUNITIES FOR INCREASING THE EFFICIENCY OF HIV INFECTION PROPHYLAXIS (LITERATURE REVIEW)

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Annotation

In the article, the author reviews domestic and foreign literature on the epidemiology and prevention of HIV infection among serodiscordant couples. This article presents scientifically based explanations of the epidemiological characteristics of HIV infection in serodiscordant couples and the development of the epidemic process, as well as social risk factors from an epidemiological point of view.

Detailed information on the effectiveness of antiretroviral treatment and disease prevention is provided.The proportion of women among new cases of infection in our country is increasing day by day, and the feminization of the HIV/AIDS epidemic among older women compared to women of reproductive age requires the strengthening of preventive programs and measures aimed at preventing the spread of infection.

Keywords: HIV infection, serodiscordant couples, epidemic process, feminization of the HIV/AIDS epidemic, serodiscordant couple, consolidation.

Relevance: Despite the current medical and political efforts to combat HIV infection, it remains a serious challenge for the health systems of many countries [11].The spread of HIV infection is mainly among the working-age population.'to have a negative impact on'As a result, the country's social and economic growth rate is slowing down [12].

According to the World Health Organization, the probability of HIV infection through a single sexual contact is 0.1-0.2% in women and 0.03-0.09% in men. One of the risk factors that increases the risk of infection is the viral load of an HIV-positive sexual partner. Women are at higher risk of infection during unprotected sex. As the frequency of such sexual contacts increases, the risk of infection also increases. As a result of a study conducted in 2023, the number of serodiscordant couples infected with HIV was 272, the proportion of healthy women with HIV-infected sexual partners was 216 (79.4 ± 2.5%), the proportion of healthy men was 56 (20.6 ± 2.5%) ($p<0.001$). Despite the fact that these couples were covered by pre-exposure prophylaxis (PEP) under dispensary supervision, from 2019 to 2023 (5 years), as a result of the increase in viral load, 80% of women and 20% of men (4 women and 1 man) were infected in

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5 cases in healthy sexual partners. In 5 cases identified among serodiscordants, the couples now became "seroconcordant couples" (both partners have HIV infection) [17].The proportion of women among new HIV infections is increasing and the incidence rate remains high, although there is a tendency to decrease in the initial incidence rate, the age structure has changed: the proportion of older age groups has increased compared to women of reproductive age, which is associated with heterosexual transmission. In the current context, the feminization of the HIV/AIDS epidemic requires a review of the strategy for combating HIV infection at the regional level, as well as the strengthening of preventive programs and measures aimed at preventing the spread of infection [9].

Epidemiological consolidation of studies makes it possible to track changes in the concentrated epidemic situation in risk groups and, in the case of generalization of the epidemic, in the general population in the regions of the country [3].

One of the main directions of the UNAIDS strategy is to reduce the risk of the spread of recombinant and drug-resistant strains of HIV for preventive purposes. Molecular-genetic monitoring of viral resistance, especially in the late stages of the disease, with an assessment of the impact of resistant strains on the rate of progression of the HIV/AIDS epidemic process, is not only a relevant clinical but also an epidemiological task [15].To date, serodiscordant couples (HIV-positive and HIV-negative marital or sexual partners) remain an understudied population group. In current epidemiological studies, serodiscordant couples are rarely considered as a separate target group. As a result, special preventive programs and a system of scientifically based approaches aimed at preventing sexual transmission of HIV infection have not been sufficiently developed [21]. By serodiscordant couples we mean couples in which one sexual partner is HIV-infected and the other is healthy. In couples in which one person is living with HIV (HIV-seropositive) and the other is HIV-seronegative, the HIV-seronegative partner is constantly at risk of infection [17].

A risk-based approach is one of the most effective strategies for preventing the spread of HIV infection among vulnerable populations. This approach allows for an assessment of the real state of the epidemic process, identification of groups at high risk of infection, and targeted planning of preventive measures. In modern practice of combating HIV, it is necessary to develop socio-epidemiological research programs focused on epidemic risk in order to identify relevant risk groups, contingents, and behavioral factors specific to them. Such programs serve the following purposes: obtaining reliable and up-to-date data on behavioral and health indicators in vulnerable populations, assessing the level of awareness of HIV/AIDS, optimizing measures aimed at early detection of infection, and organizing preventive and anti-epidemic measures in a differentiated, targeted, and scientifically sound manner. This information is an important component of the epidemiological surveillance system and is of great importance in making practical decisions for working with high-risk populations. The mainstay of pre-exposure prophylaxis for serodiscordant couples, one of these risk groups, is antiretroviral therapy (ART), where the treatment plan is based on individual epidemiological indicators, clinical status, and viral load. Timely and continuous ART significantly reduces the risk of HIV transmission. This prevents transmission through the principle of "undetectable = untransmissible" (U=U), helps to increase the patient's life expectancy and quality of life, and allows the couple to maintain reproductive health [18].

Today, modern medicine has proven that effective ART, based on proven strategies and a consistent approach, has transformed HIV infection from an incurable and fatal disease into a manageable condition through treatment and diagnostic measures. Life expectancy of people

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living with HIV has increased, their quality of life has improved significantly, and the number of possible sources of infection has decreased. The concept of "treatment as prevention" is now becoming an integral part of the fight against HIV/AIDS, since early initiation of ART significantly reduces the risk of transmission, as well as AIDS-related morbidity and mortality. At the same time, the principles of targeted prevention of ART, taking into account the modern epidemiological characteristics of HIV infection, remain strong [22]. HIV infection is inextricably linked with reproductive and sexual health [8].

The preventive role of ART as a key component of the HIV response strategy has been debated for over 25 years. While initial evidence of ART's effectiveness in reducing HIV transmission was limited, over time, there has been strong evidence that ART can reduce viral load to undetectable levels, leading to immune system recovery. These data support the scientific hypothesis that expanding ART coverage and initiating treatment as early as possible can effectively limit the spread of the HIV pandemic. Today, expanding ART is recognized not only as the primary treatment standard in HIV control, but also as a preventive mechanism that can reduce sexual transmission of HIV. In this regard, the widespread introduction of ART in combination with basic epidemiological and preventive measures is seen as a promising new concept in the fight against HIV/AIDS - "Treatment as Prevention" (TasP). Antiretroviral therapy (ART) is recognized as a key and priority component of the global strategy to combat HIV infection. ART has fully proven its high efficiency, relevance, specificity and clinical significance (serving to support the patient's immune system and prolong life expectancy). The principles of HIV treatment and the initial scientific criteria for the use of ART were developed by the US National Institutes of Health (NIH) in 1997, and these principles later served as the main source for the formation of international standards and clinical protocols [1].

The concept of remission includes the following: the absence of secondary clinical signs and diseases, undetectable viral load for at least 6 months after the start of ART, and a CD4 lymphocyte count ≥350/μl (in women). On this basis, there is a need to make changes to the procedure for providing medical care to women infected with HIV during pregnancy, childbirth and the postpartum period. In addition, it is advisable to make changes to the standards of medical care for women infected with HIV from the point of view of family planning services. These changes are aimed at: ensuring the safety of women and fetuses during pregnancy and childbirth; reducing the risk of HIV transmission, supporting the immune system through effective and continuous use of ART, expanding family planning and reproductive health services. Thus, the recommended changes will ensure the provision of high-quality, systematic and integrated medical care to women infected with HIV [4].

Serodiscordant couples face a number of social, reproductive, and sexual challenges that are often overlooked [20]. Studies have shown that HIV-positive and HIV-negative partners in serodiscordant relationships may experience a variety of psychosocial and emotional symptoms. These include: anger and guilt, hopelessness and depression, anxiety and worry, and in some cases, suicidal thoughts. Therefore, when working with serodiscordant couples, it is important to provide not only clinical treatment, but also psychological support and a social support system. Such an approach serves as an effective tool for maintaining the mental health of couples, reducing stress, and controlling the risk of HIV transmission [10].

Non-disclosure of HIV status, frequent unprotected sexual intercourse, and failure to use condoms, pre-exposure prophylaxis, and post-exposure prophylaxis (PEP) are all risk factors for HIV transmission to sexual partners [2]. Psychosocial support is essential for disease prevention, health promotion, treatment adherence, and recovery [13]. Depression screening*

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is particularly recommended for serodiscordant couples of reproductive age who have been HIV-infected for more than a year and who are depressed. In the absence of a widely available and effective HIV vaccine, accurate information about transmission and prevention remains the most effective way to control the HIV/AIDS epidemic. Appropriate information interventions can change people's behavior and reduce HIV infection rates [14].

In the era of modern globalization, it has been proven that the main source of education that modern youth most often turn to for medical advice is the Internet and social networks [5]. Prevention is largely due to many reasons, including late diagnosis of HIV, late initiation of antiretroviral therapy, women's refusal to disclose their HIV status and treatment, late referral during pregnancy, untimely epidemiological surveillance and clinical monitoring, failure to maintain continuity of feedback between obstetric services and AIDS centers and treatment and prevention institutions as primary health care. To prevent these problems, an individual approach to the implementation of targeted prevention is necessary for each HIV-infected woman. For this, it is necessary to officially assign medical workers to each HIV-infected patient on the basis of a schedule approved by organizational control, that is, by order of the chief physician of the district or city medical association, and to determine their responsibilities. In this regard, the clarity of the tasks of the assigned medical workers is of great importance. If the tasks and responsibilities of each medical worker in the sequence of preventive measures are clearly defined, and epidemiological control is properly established, it creates the basis for preventing HIV infection [6].

It is worth noting that in modern conditions, assessing the health status of a patient of any age requires an individual (personal) approach [5].

The algorithms for patient management by specialists of medical organizations providing assistance to serodiscordant couples in the treatment of HIV infection have not yet been clearly defined. The corresponding statistical reporting forms have not been developed or introduced. The study of regional problems of monitoring serodiscordant couples infected with HIV infection allows us to: develop monitoring algorithms aimed at maintaining the health of seronegative partners in contact with a seropositive sexual partner, create a system of planning and epidemiological control of the birth of healthy children in serodiscordant couples, and introduce systematic and effective monitoring and management algorithms, which are important for providing quality medical care to couples infected with HIV and reducing the epidemic risk [19].

Serodiscordant couples often experience difficulties in social and sexual relationships [20], and psychosocial support is essential [13]. Studies have shown that serodiscordant couples experience a variety of psychological distress in their sexual relationships, including anger, betrayal, guilt, hopelessness and depression, anxiety and worry, and in some cases suicidal thoughts, between seropositive and seronegative sexual partners. Therefore, it is important to establish a system of not only clinical but also psychological support and social care in the antiretroviral treatment of serodiscordant couples. Such an approach is effective in maintaining the mental health of serodiscordant couples, reducing depression, and epidemiologically controlling the risk of HIV transmission [10]. Taking into account the involvement of endogenous, somatogenic, and psychogenic mechanisms in the development of depression, an integrated approach to the management of these patients is required. Addressing existing problems in sexual relations and safe sex among seronegative women in serodiscordant couples requires the development of electronic digital questionnaires and the provision of anonymous medical and psychological support.

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Indeed, in the era of modern globalization, it has been proven that the main educational source that young people most often turn to for medical advice is the Internet and social networks [7].

An algorithm for epidemiological assessment of HIV transmission to seronegative women in serodiscordant couples has not been developed. Appropriate statistical reporting forms have not been developed or implemented. Studying the existing problems among seronegative women in serodiscordant couples infected with HIV allows us to: prevent HIV transmission to seronegative partners who have sex with a seropositive sexual partner, conduct regular epidemiological and clinical monitoring of them, study family planning, social problems, provide quality medical care, and reduce the risk of epidemic spread [18]. In these couples, when the HIV-infected partner is not on antiretroviral therapy, or when treatment is ineffective (if the viral load is detected), the HIV-uninfected partner is prescribed pre-exposure prophylaxis. If the viral load is not detected in the blood of the seropositive sexual partner, pre-exposure prophylaxis is not necessary. Pre-exposure prophylaxis is a type of medical treatment that protects against HIV infection, but it does not protect against other sexually transmitted infections. Therefore, it is necessary to use other preventive methods and personal protective equipment (PPE) in addition to this method. The main indication for prescribing pre-exposure prophylaxis for HIV prevention is the presence of a high risk of HIV infection in the seropositive sexual partner and his willingness to take medication on time and regularly check the level of HIV RNA according to the doctor's instructions. Pre-exposure prophylaxis is prescribed on a commission basis, for which a medical observation card is opened for the person prescribed, which records the personal data of the person receiving prophylaxis, epidemiological and clinical history, and the reasons for prescribing pre-exposure prophylaxis. The procedure for using pre-exposure prophylaxis is supervised by an infectious disease doctor responsible for reproductive sexual health and antiretroviral treatment.

Given the high risk of sexual transmission of HIV infection, timely serological testing of serodiscordant couples for HIV infection, achieving an undetectable viral load in the seropositive sexual partner, as well as continuous provision of sexual and reproductive health and modern contraceptives, requires continuous monitoring [17].

LIST OF REFERENCES USED:

1. Achieving the 95 95 95 targets for all: A pathway to ending AIDS / L. Frescura, P. Godfrey-Faussett, A. Feizzadeh [h gp.] // PLOS ONE. - 2022. - T. 17, No. 8. -C. e0272405.

2. Ayuttacorn A, Tangmunkongvorakul A, Musumari PM, Srithanaviboonchai K, Jirattikorn A, Aurpibul L. Discovery of HIV-status in middle genshin-migrantov Shan, jivushih s HIV na severe in Thailand: kachestvennoye issledovaniye. PLoS One. 2019; 14(5):e0216382. doi:10.1371/journal.pone.0216382.

3. Bayramovna, K. I. (2025). The Importance Of Studying The Epidemiological Characteristics Of Hiv Infection Among Women By Age. Emerging Frontiers Library for The American Journal of Medical Sciences and Pharmaceutical Research, 7(11), 90-95.

Western European Journal of Medicine and Medical Science
Volume 3, Issue 07, July 2025
https://westerneuropeanstudies.com/index.php/3
ISSN (E): 2942-1918 Open Access| Peer Reviewed

4. Калниязова, И. Б., Матназарова, Г. С., & Миртазаев, О. М. (2023). Дозорный эпидемиологический надзор за ВИЧ-инфекцией среди беременных женщин Республики Каракалпакстан. Journal of Health Development, 2(51), 41-45.

5. Калниязова, И. Б., Рахманова, Ж. А., & Ниязова, Г. Т. (2024). Меҳнат мигрантлари бўлган ОИВ-инфекцияли ҳомиладор аёлларни дистанцион мониторинг тизимини ташкиллаштиришни такомиллаштириш. «YOSH OLIMLAR TIBBIYOT JURNALI» TASHKENT MEDICAL ACADEMY «MEDICAL JOURNAL OF YOUNG SCIENTISTS» ТАШКЕНТСКАЯ МЕДИЦИНСКАЯ АКАДЕМИЯ, 61.

6. Kalniyazova, I. B. (2025). MODERN EPIDEMIOLOGICAL CHARACTERISTICS OF THE SPREAD OF HIV INFECTION AMONG WOMEN. Журнал гуманитарных и естественных наук, (20), 73-78.

7. Kalniyazova IB, Rakhmanova JA, Niyazova GT // Improving the organization of a remote monitoring system for HIV-infected pregnant women who are labor migrants. Tashkent Medical Academy. Medical Journal of Young Scientists. №11 (09), 2024. P.67.

8. Kalniyazova IB, Rakhmanova JA, Mirtazayev OM, Matnazarova GS Modern approach to the prevention of HIV infection among pregnant women // O'Republic of Uzbekistan Health'Ministry of Health. Methodological recommendations. Tashkent. 2022. B.18.

9. Kalniyazova, I. B. (2025). O ‘ZBEKISTON RESPUBLIKASIDA AYOLLAR ORASIDA OIV-INFEKSIYASINING EPIDEMIK TARQALISHIDA YOSHGA DOIR KO ‘RSATKICHLARNING AHAMIYATI. Медицинский журнал молодых ученых, (14 (06)), 306-310.

10. Kalniyazova, I. B., & Raxmanova, J. A. (2025). O ‘ZBEKISTONDA AYOLLAR ORASIDA OIV-INFEKSIYASINING TARQALGANLIGI BO ‘YICHA EPIDEMIK VAZIYAT. Вестник Ассоциации Пульмонологов Центральной Азии, 8(3), 131-135.

11. Levakhina L.I., Pasechnik O.A., Blokh A.I. EPIDEMIOLOGICHESKIE PROYAVLENIYA VICH-INFEKTII V ZHENSKOY POPULYATSII NA TERRITORIII SIBIRSKOGO FEDERALNOGO OKRUG. Volume 17, No. 3, 2025 JOURNAL OF INFECTOLOGY. C-139. https://journal.niidi.ru/jofin/article/view/1840/1229

12. Mashapchu, S, i Burns, Dj. K. Parnye vmeshatelstva v kontekte dissonantsii VICh. S Afr Dj. Psychiatry. (2017) 23:1–2.

13. Maheu-Giroux M., Vesga JF, Diabaté S., Alary M., Baral S., Diouf D., Abo K., Boily MC Population-level impact of an accelerated HIV response plan to reach the UNAIDS

Western European Journal of Medicine and Medical Science
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https://westerneuropeanstudies.com/index.php/3
ISSN (E): 2942-1918 Open Access| Peer Reviewed

90–90–90 target in Côte d'Ivoire: Insights from mathematical modeling. PLoS Med., 2017, Vol. 14 (6), pp. e1002321. DOI: 10.1371/journal.pmed.1002321

14. Organization of medical assistant in infection, vyzyvaemoy virusom immunodeficitsita cheloveka / V.V. Pokrovsky, G.E. Ulumbekova, I.V. Petrachkov // ORGZDRAV: News. Mnenia. Obuchenie. Vestnik VShOUZ. - 2022. - T. 28, No. 2. - S. 108-130

15. Okonji, EF, Mukumbang, FC, Orth, Z, Vickerman-Delport, SA, and Van Wyk, B. Psychosocial support interventions for increasing cognition and stress and ART-treatment for young people, children and adolescents (10–24 years old): a scale review. Public Health BMC. (2020) 20:1–11. doi: 10.1186/s12889-020-09717-y.

16. Albright, K.S., Kavuya, D., & Hoff, Dj. Informational vaccine: information and information on HIV/AIDS in Uganda. Bibliotechnoe delo kak most k informatsionnomu i znamenatelnomu obshchestvu v Afrike, volume 124; (2007): 155

17. Ojmegova E.N., Bobkova M.R. /Lekarstvennaya ustoychivost VICh: prejnie i sovremennye tendentsii // Voprosy virologii. - 2022. - T. 67, No. 2 3. - S. 193205

18. Planirovanie beremennosti v VICh-discordantnyx parax // Coalition for reproductive selection "Grozd ryabiny". URL:http://za-vybor.ru/ru/2011-07-29-15-37-02/89-2011-08-01-08-33-48(data processing: 01.05.2013).

19. Rakhmanova JA, Kalniyazova IB, Niyazova GT // Epidemiological aspects of HIV infection in serodiscordant couples and the organization of pre-contact prophylaxis among these population groups. Poland. Miasto Przyszłości. Vol 47 (2024). P.829-836.

20. Ronaldo Campos Hallal, Juan Carlos Rahach, Nêmora Tregnago Barcellos, Ivia Maksud // Strategies to prevent HIV transmission to serodiscordant couples. REV BRAS EPIDEMIOL SEP 2015; 18 SUPPL 1:169182.file:///C:/Users/ASUS/Downloads/Telegram%20Desktop/Strategies_to_prevent_HIV_transmission_to_serodiscordant_couples%20(2).pdf

21. Podimova AS Smirnova SS, Gusev AG, Kadyrov DA, Posokhova LA Analysis of the causes and factors of risk transition and positive HIV status and lysis, contact with HIV-infected patients, and modern strategy for prevention // HIV infection and immunosuppression. 2017. T. 9, No. 3. S. 28–33.

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ISSN (E): 2942-1918 Open Access| Peer Reviewed