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TOPICAL ISSUE

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INCIDENCE OF HIV INFECTION AND AWARENESS OF HIV INFECTION AMONG THE POPULATION OF THE IRKUTSK REGION

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The article presents certain aspects of the epidemiological situation regarding HIV infection in the Irkutsk region: morbidity in adults, children and adolescents, dynamics of transmission routes and age groups at risk. According to the results of the sociological study, a satisfactory level of awareness of the region's residents on HIV infection issues has been shown, with significant differences by gender and age groups. The results obtained are necessary to increase the effectiveness of information and educational work among the population, with an individual approach to each gender and age group.

Keywords: HIV infection, morbidity, awareness, age groups at risk, prevention.

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Introduction. The epidemic spread of HIV infection continues on the territory of the Russian Federation (RF). In 2022, 34 constituent entities of the Russian Federation had rates of newly diagnosed morbidity that exceeded the Russian average [8]. The Irkutsk region is one of the five most disadvantaged regions: in 2022, the incidence rate was 1.8 times higher than the all-Russian one (79.3 versus 43.3 per 100 thousand), the incidence rate was 2.5 times higher (1977.9 versus 794 .7 per 100 thousand, respectively) [8].

The economic damage caused by HIV infection in the Russian Federation in 2022 is estimated at 262.5 billion rubles. [8]. The high epidemiological, social and economic significance of the consequences of the spread of the human immunodeficiency virus (HIV) determines the main directions of prevention [9]. The leading preventive measure remains awareness-raising activities. Taking into account the peculiarities of the epidemiological situation in the region, the priority is to study the awareness of different age groups of the population on current issues of HIV infection.

Purpose of the study: to study the incidence of HIV infection and awareness in different age groups of the population of the Irkutsk region on the epidemiology

and prevention measures of this infection.

Materials and methods of research. A descriptive retrospective epidemiological study was conducted using continuous samples from statistical forms of the Irkutsk region (No. 2 «Information on infectious and parasitic diseases», No. 61 «Information on HIV infection»). The dynamics of HIV transmission routes are presented from the beginning of the epidemic rise in incidence (1999–2022); the incidence of three main population groups and the newly diagnosed incidence of HIV infection among 7 age groups, calculated based on long-term average values for 2016–2022, were studied.

The population's awareness of HIV infection issues was studied during a sociological study (questionnaire) on the Google platform from October 2022 to July 2023. The questionnaire included closed-ended questions about the epidemiology and basic measures to prevent HIV infection. 2063 people took part in the survey – 457 men and 1606 women (77.8 and 22.2 %, respectively) with the following distribution by age groups: 16-17 years old – 234 people (11.3 %); 18-25 years old – 885 people (43.0 %), 26-45 people (37.6 %) and over 46 years old – 168 people (8.1 %). To assess the statistical significance of differences in relative indicators, confidence intervals were calculated with a significance level of 95 % (95 % CI). To assess the awareness of groups on certain grounds (by gender and age groups), the ratio of the proportion of respondents who marked all the correct answers to the proportion of people who selected partially correct answers was determined. Based on the obtained ratios, the ranking positions of the four age groups of respondents were determined, separately for two questions. After summing these ranking positions, the final ranks were obtained. Graphical processing of data was performed using Excel (Windows 2010).

Results and discussion. For a number of years, the Irkutsk region has been among the regions with high levels of incidence and prevalence of HIV infection [8]. In the long-term dynamics of morbidity among adults, adolescents and children under 14 years of age, during the observation period there was a downward trend, the rate of decline was 4.5; 9.5 and 8.3 % respectively. Moreover, the period 2020–2022 was characterized by low incidence rates (Fig. 1) [1, 10, 12, 13].

Over the entire period of the epidemic spread of HIV, significant changes in the leading transmission routes have been observed (Fig. 2). If at the beginning of the epidemic, from 1999 to 2007, the parenteral route predominated (specific gravity more than 90.0 %), then since 2008 the HIV epidemic in the region has entered a generalized phase – with a predominance of sexual transmission (more than 55.0 %), as in other regions of Russia [1, 4, 10, 11].

The age groups involved in the epidemic process have also undergone significant changes [1, 3]. Thus, if in the first years of the HIV epidemic the main contribution was made by persons under the age of 24 years, currently HIV infection is registered mainly among persons 25-49 years old with the highest rates in the age group 35-44 years (Fig. 3).

Based on the results of the survey, to the question "Do you consider yourself in-

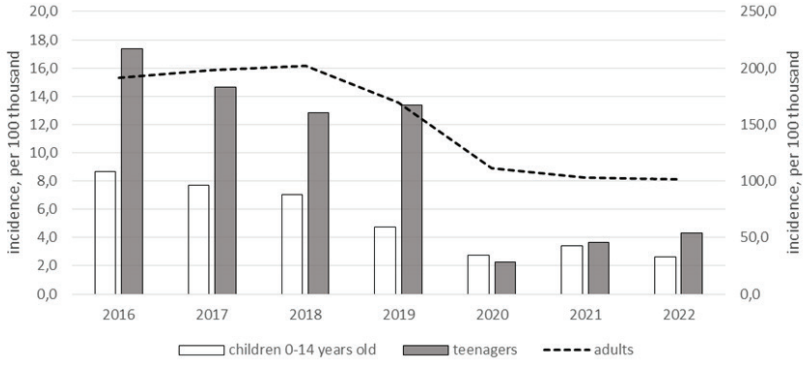

Fig. 1. Dynamics of newly diagnosed incidence of HIV infection among different population groups for 2013-2022 (per 100 thousand)

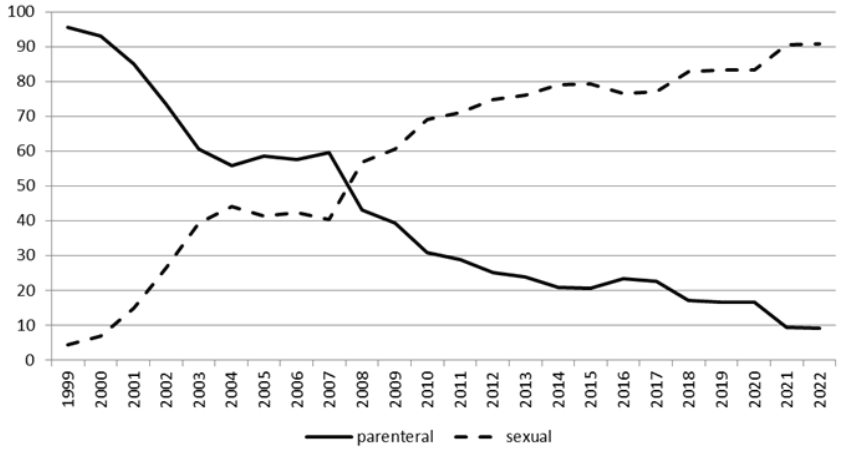

Fig. 2. Dynamics of the share of HIV transmission routes for 1999-2022. (percentage)

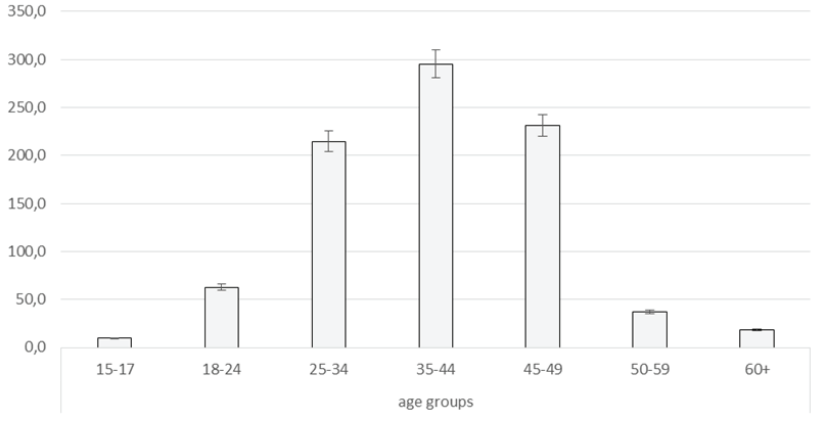

Fig. 3. Newly detected incidence of HIV infection in individual age groups based on long-term average values for 2016-2022. (per 100 thousand)

formed on issues of HIV infection/AIDS?" 85.0 % of respondents answered affirmatively, 5.0 % responded negatively, and 10.0 % found it difficult to answer. As in a similar survey [5], women consider themselves to be more informed on HIV issues than men surveyed (87.1 versus 77.5 %), and the proportion of men who do not consider themselves informed is 2.6 times higher. than women (9.6 versus 3.7 %). Among the respondents who found it difficult to answer this question, 9.2 % were women and 12.9 % were men. In terms of age groups, people aged 18-25 years (88.6 %) and 26-45 years (87.8 %) consider themselves more knowledgeable about HIV issues. Teenagers aged 16-17 years consider themselves least informed (64.1 %), every fifth of them found it difficult to answer this question (21.4 %), while among all respondents – only every tenth.

When asked whether the problem of HIV infection could affect you personally, 47.4 % of respondents answered «yes»; 42.0 % – «no»; 10.6 % found it difficult to answer. There was no statistically significant difference in the answers of men and women.

One third of the respondents, when asked how one can become infected with HIV, noted all the correct answers about the routes of infection – 31.3 %; two-thirds of respondents chose partially correct answers – 68.7% (Table 1). Thus, the ratio of shares was 1: 2.2. There is a statistically significant gender difference, both in the proportion of people who chose all the correct answers – 25.4 % of men and 32.9 % of women, and in the group of people who chose partially correct answers – 74.6 and 67.1 %, respectively . This is clearly demonstrated by the ratios of shares (Table 1).

The choice of partially correct answers to the question about possible routes of transmission of HIV infection by individual age groups ranged from 66.4 to 78.0% (Table 2). Those surveyed aged 16-17 and 26-45 years were more knowledgeable about transmission routes. Moreover, the proportion of respondents in the middle age group from 26 to 45 years old who correctly noted all routes of HIV infection (33.6 %) was statistically significantly different from the proportion of persons aged 18-25 (25.4 %) and over 46 years (22.0 %).

To prevent HIV infection, respondents believe that the following measures can be used: a condom with every sexual intercourse (96.3 %); disposable syringes for intravenous infusions (90.4 %), sexual relations with only one partner (60.2 %). All correct answers to the question of how to prevent HIV infection were given by 32.3 % of respondents. At the same time, the proportion of respondents who knew all the answers to this question was statistically significantly higher among women than among men – 35.8 versus 19.9% (Table 1). Age groups with the choice of all correct answers about preventive measures were distributed as follows (in descending order of share): 18-25 years (35.3 %), 26-45 years (32.0 %), over 46 years (28.0 %) and 16-17 years old (25.6 %) with a statistically significant difference between the age groups 16-17 and 18-25 years old (Table 2).

Based on the results of the final ranking, we can conclude that the most informed age groups in the Irkutsk region on HIV issues are people 26-45 years old, and the least informed are people over 46 years old [14]. The youngest respondents, persons from 16 to 25 years old, have an average level of awareness, occupying the 2nd and 3rd ranking positions. Moreover, if 16-17-year-old adolescents know better the ways of transmitting HIV infection and less well – prevention measures, then young people from 18 to 25 years old do the opposite, which indirectly indicates a high risk of the spread of HIV infection among young people [5, 13].

Conclusion. Against the background of the current situation regarding HIV infection in the region, the results of a sociological study showed a sufficient level

Table 1

Distribution of answers to questions about routes of HIV infection and measures to prevent it among men and women (percentages, 95% CI)

choosing the correct answers	question about ways of contracting HIV infection			question about HIV prevention measures		
	men	women	total	men	women	total
all selected	25.4 [21.5÷29.3]	32.9 [30.6÷35.2]	31.3 [29.4÷33.2]	19.9 [16.4÷23.4]	35.8 [33.5÷38.1]	32.3 [30.4÷34.2]
partially selected	74.6 [70.7÷78.5]	67.1 [64.8÷69.4]	68.7 [66.8÷70.6]	80.1 [76.6÷83.6]	64.2 [61.9÷66.5]	67.7 [65.8÷69.6]
share ratio	1:2.9	1:2.0	1:2.2	1:4.0	1:1.8	1:2.1

Table 2

Distribution of answers to questions about routes of infection and prevention measures among different age groups (percentages, 95% CI)

choosing the correct answers	age groups			
	16-17 years old	18-25 years old	26-45 years old	over 46 years old
question about ways of contracting HIV infection				
all selected	32.9 [27.1÷38.7]	25.4 [22.5÷28.3]	33.6 [30.5÷36.7]	22.0 [16.0÷28.0]
partially selected	67.1 [61.3÷72.9]	74.6 [71.7÷77.5]	66.4 [63.3÷69.5]	78.0 [71.8÷84.2]
share ratio	1:2.0	1:2.9	1:2.0	1:3.5
ranking position*	1.5**	3	1.5	4
question about HIV prevention measures				
all selected	25.6 [23.9÷27.3]	35.3 [32.2÷38.4]	32.0 [28.9÷35.1]	28.0 [21.4÷34.6]
partially selected	74.4 [68.5÷80.2]	64.7 [61.6÷67.8]	68.0 [64.9÷71.1]	72.0 [65.4÷78.6]
share ratio	1:2.9	1:1.8	1:2.1	1:2.6
ranking position	4	1	2	3
final rank for two questions	3	2	1	4

* by share ratio
** two age groups share 1st and 2nd place

of awareness on HIV infection issues: 85% of respondents consider themselves informed; to prevent HIV infection, 90.4 % indicated the mandatory use of disposable syringes for intravenous injections and 96.3 % – condoms. At the same time, there is a statistically significant difference in the level of awareness on epidemiological issues and preventive measures by gender and by age group – men and people aged 16-25 and over 45 years are less informed. The results obtained to assess the level of knowledge about HIV infection are necessary to increase the effectiveness of outreach work among the population [1, 2, 5, 6, 10, 12-14], with a focus on risk groups and an individual approach to each sex and age group according to the State Strategy to Combat the Spread of HIV Infection in Russia for the Period until 2030 [7].

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DIAGNOSIS AND TREATMENT OF BILIARY TRACT DISEASES IN PATIENTS WITH COVID-19

The features of diagnosis and treatment of biliary tract diseases in patients with COVID-19 were studied. An increase in the number of non-calculous cholecystitis and gallbladder gangrene in severe cases of COVID-19 was revealed. The immunosuppressive effect of SARS-CoV-2, anti-inflammatory and antibacterial therapy, and multiple organ failure led to a decrease or complete absence of local symptoms and leukopenia in acute cholecystitis. In severe cases of COVID-19, the basis for diagnosing acute cholecystitis was dynamic ultrasound examination of the abdominal cavity, diagnostic laparoscopy and laparotomy in patients with the highest levels of leukocytosis, CRP and PCT. The greatest number of postoperative complications and deaths were observed in patients with severe COVID-19. In patients with malignant neoplasms of the biliary tract, the main symptom was "painless" jaundice. The diagnosis was confirmed by abdominal CT scan. All patients underwent minimally invasive ultrasound and endoscopic drainage operations.

Keywords: Acute cholecystitis, new coronavirus infection, COVID-19.