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PECULIARITIES OF THE EPIDEMIOLOGICAL SITUATION OF HIV INFECTION/AIDS IN LVIV REGION FOR 2014

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The article presents a brief analysis of the epidemiological features of HIV infection in Lviv region in 2014. The reasons for the growth rate of AIDS compared to 2013 have been defined and analyzed. Additionally, the data on HIV infection spread in the groups most vulnerable to HIV and among pregnant women and donors have been processed. It has also been discovered that sexual transmission of germs is predominant in Lviv region. The age and gender characteristics of HIV infection have been analyzed as well. Moreover, intersectional approaches and organizational measures introduced at the present stage to facilitate early detection and treatment of HIV-infected people have been characterized. The issues and priorities to combat HIV/AIDS in the future have also been identified.

Key words: *HIV, AIDS, injectors, pregnant women, donors, antiretroviral therapy, preventive measures.*

INTRODUCTION

The disease caused by the human immunodeficiency virus (HIV) struck humanity not only by medical aspects but also by the scale of socio-economic and demographic consequences. The spread of HIV is a serious problem in Ukraine, including Lviv region. According to the rating of UNAIDS (Joint United Nations Programme on HIV/AIDS), Ukraine occupies 22nd place among 123 countries as based on the estimated number of people living with HIV [1, 2]. The spread of HIV among adults aged 15–49 equaled to 1.2% (or 290,000 people). The situation analysis shows that the control of the epidemic is not carried out in full: only every second (50%) of HIV-infected citizens of Ukraine knows his/her HIV status and consequently addresses medical institutions [3, 4]. However, according to the results of 2013, Ukraine for the first time has achieved a significant progress

in combating HIV/AIDS epidemic. Ukrainian experts finally managed to stop the increase of new AIDS cases and deaths from the disease [4]. However, already in 2014, in terms of the socio-economic crisis associated with the military operations in the east of Ukraine, AIDS incidence growth rate was recorded by 10.2% more than in 2013.

If not to provide rapid expansion of the actions scope in the next five years, the epidemic can return, but the rate of the new HIV infections instances will be higher than the current.

The main tool for monitoring and receiving characteristics of the epidemic process on HIV/AIDS is epidemiological surveillance. Epidemiological surveillance for HIV infection is a system of comprehensive assessment of the epidemic process dynamics in space, time, and among the defined population groups in order to plan and timely take science-based preventive measures for HIV infection, to assess the efficiency of their application and develop epidemiological prognosis [5–7].

The research **aim** is to analyze the features of the epidemiological situation of HIV/AIDS in Lviv region in 2014.

MATERIALS AND METHODS

Lviv regional statistical records: a form of primary records No. 502-1/o “Registration Card of HIV-infected person”, a form of primary records No. 502-2/o “Report about changes in the Registration card of HIV-infected person”; reporting documents: form No. 2-HIV/AIDS “Report on persons with conditions and diseases caused by human immunodeficiency virus (HIV) for 2012” (annual), form No. 2-HIV/AIDS “Report on persons with conditions and diseases caused by human immunodeficiency virus (HIV) for 2013” (annual), form No. 2-HIV/AIDS “Report on persons with conditions and diseases caused by human immunodeficiency virus (HIV) for 2014” (annual).

RESULTS AND THEIR DISCUSSION

According to the official statistics, the highest levels of HIV infection (in terms of 100 thousand people) in Ukraine in 2014 was registered in the south-eastern regions of Ukraine – in the regions with the highest number of registered injectors, namely in Dnipropetrovsk (96.6), Mykolaiv (92.8), Donetsk (70.4) and Odessa (109.8) regions. At the same time, the western regions of Ukraine, which comprise 8 regions (including Lviv), are less affected and refer to the areas with low HIV prevalence, where the level of HIV infection ranges from 6.5 (Transcarpathian region) to 25.4 cases (Volyn region) for 100 thousand of people (2014 – 19.4) [8]. This epidemic is confirmed by the data on infection among pregnant women, what accurately reflects the trends of the HIV epidemic among the general population. The HIV infection rate among pregnant women initially surveyed

in 2014 in the region was 0.15% against average 0.36% in Ukraine. The development of HIV/AIDS epidemic in Lviv region has the same consistency as generally in Ukraine. As of 01.01.2015 2730 HIV-infected people (including 284 children) were registered in the region, 809 people (including 12 children) of whom were registered at the stage of AIDS.

These consistencies are highlighted in the Fig. 1.

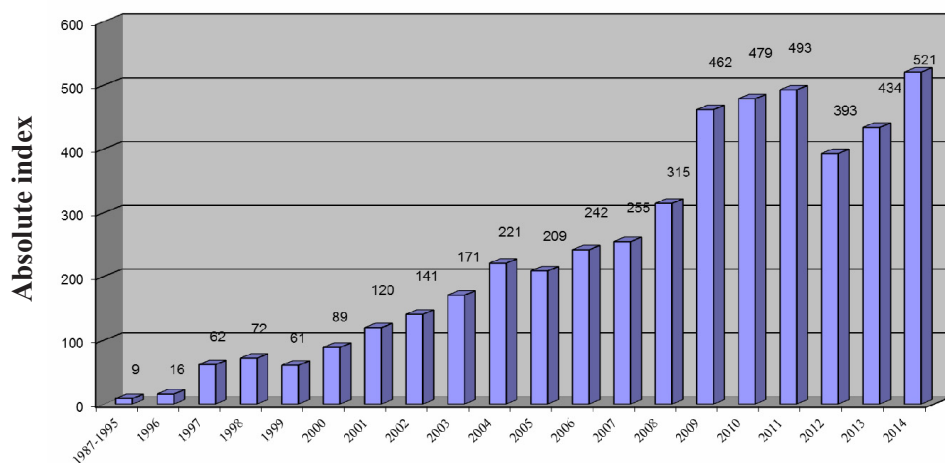


Fig. 1. Dynamics of officially registered HIV infection cases, regardless of the disease stage (including children born by HIV-infected women whose HIV infection diagnosis is at verification stage)

Indices analysis shows that since 2000 to 2011 the annual number of HIV-infected people increased but during 2011-2013 there was marked the slowdown in growth of the index to -20.4% in 2012. However, in 2013-2014 the growth rate of incidence increased again (for 2013 – by + 6.4%, for 2014 – by + 17.3%) due to the efficient work of the HIV infection detection at the asymptomatic stage. This is explained by the implementation of measures complex to suspend the HIV epidemic, particularly among injectors.

In 2014 HIV infection diagnosis, for the first time, set for 490 persons, what is more than in 2013 (418 people) and 2012 (393 people) respectively. However, among these individuals the 4th stage of HIV infection (the stage of acquired immunodeficiency syndrome – AIDS) was verified in 184 people, what is less than in 2013 (209 people) and more than in 2012 (165 people). First detection of patients at the stage of AIDS shows, on the one hand, the imperfect work of the primary health care area, and, on the other – the epidemic maturity, i.e. involvement of medical control by the AIDS health care institutions of more and more people at the later clinical stages of HIV infection.

This situation requires 100% coverage of the infected by antiretroviral therapy (ART). It is known that ART positively affects not only their health but also is a powerful preventive measure [1, 9, 10]. In general, the pace of the AIDS epidemic development outruns the pace of its prevention deployment. Furthermore, the officially registered incidence of HIV infection in the region is significantly diminished because of the insufficient examination of vulnerable groups. Therefore, there is the priority to track the patients' further fate and provide them with medical supervision.

The mortality indicator is one of the major measurements that describe the HIV/AIDS epidemic situation [11]. According to the cumulative data from 1987 (the start of the HIV registration in Lviv region) as of 01.01.2015, 574 people, including 6 children, died of AIDS-related illnesses. In 2014 the growth rate of deaths from AIDS fell by 5%. The most frequent causes of death were pulmonary and extrapulmonary tuberculosis (61.6% of cases), pneumocystis pneumonia (14.7%), and central nervous system toxoplasmosis (8%). Among the "other causes of death", whose share averaged 15.7%, were liver cirrhosis, renal and liver failure, sepsis, cerebral edema, cardiovascular failure, etc. Therefore, since 2013 a separate analysis of mortality has been conducted among the patients receiving and not receiving ART and these results have been brought to the general public. Specifically, 40.2% of the deceased due to AIDS in 2012-2014 needed but did not receive ART, as there was very short period of time from the time of AIDS diagnosis until death. Over 80% of the deceased were diagnosed with AIDS two years before their death, and ART was not effective for such a short period. Other 18% of patients with HIV sought medical help only after two or more years after detection of their HIV-positive status, which can be explained by the insufficient professional level of pre- and posttest counseling and the high proportion of injectors. Experience has shown that injectors avoid contact with physicians and are involved in medical care at hospitals significantly later. In general, the stage of the HIV epidemic in the region is the same as in the country on the whole, and is defined as concentrated, i.e. concentrated among certain risk groups of people: injectors, commercial sex women, men who have sex with men [9]. It should be noted that the tests particle of the risk group is only 6.8% of the total number of tests. Thus, the availability of quality counseling and testing for HIV antibodies is needed to be improved in the region.

In recent years, the distribution of HIV-infected people has not changed by residence with prevalence among city residents (81% – in 2014, similar to previous years – 72.2-83.0%). Moreover, there are administrative territories where HIV prevalence index is much higher than on average in the region, namely Chervonohrad (276.1); Boryslav (227.2); Lviv (166.7); Drohobych (137.9); Stryi (148.0). Such "leadership" is explained by greater concentration of injectors in these cities.

Constant increase of HIV newly diagnosed people aged 15-24 years is a dangerous trend: 2012 – 43 persons, 2013 – 46 people, 2014 – 50 people. 1-2 cases of infection among adolescents aged 15-16 years are registered every year, usually through heterosexual contacts. When it comes to sexual peculiarities, the HIV infection spreads among men more often. This trend is constant with fluctuations for the last period in the range of 63.8% to 72.2% and is explained by the predominance of males in the injectors group.

Among the infection ways in 2014 sexual (mainly heterosexual) HIV transmission dominated – 44.3% of cases, which also corresponds to the trend of the last five years (from 39.5% to 43.5%). However, still a significant number of people infected with HIV due to unprotected sex with people who are directly related to injectors. World experience shows that injectors are most vulnerable to HIV infection and it spreads among them at high speed [11, 12]. Through the implementation of the wide range of measures aimed at suspending the HIV epidemic, particularly among injectors, there is a tendency to reduce the proportion of parenteral transmission of HIV, which in 2014 accounted for 148 cases (30.2%) against 45% in 2013 and 35.1% in 2012.

As noted above, the infection rate among the pregnant women in Lviv region does not exceed the average for Ukraine (0.36%). Thus, in 2014 medical supervision covered 125 children born to HIV-infected mothers, or 25.5% of all first registered HIV cases. These figures are on average higher by 7% when to compare to the previous years. During the period under analysis the rates of HIV infection among primary (single) donors are being stable: 0.08% in 2014 and 0.07-0.08% in 2011-2013, which is also less than the average Ukrainian index (0.14%).

Thus, the HIV epidemic in Lviv region is so far concentrated in the groups that are most vulnerable to HIV. At present both parenteral and sexual ways of transmission have epidemiological significance. The use of contaminated injecting equipment remains one of the significant risk factors for HIV infection. Practice has proven feasibility, usefulness and justification of the preventive measures and actions aimed at averting the spread of HIV, in particular, focus on changing people's behavior and their lifestyle.

The crucial role, in this situation, belongs to voluntary counseling and testing (VCT), which should provide such level of pre- and posttest counseling, which would guarantee the “guidance” of the patient to the infectious disease room (IDR) or *Lviv Regional Center for Prevention and Control of AIDS (AIDS LRC)* to conduct in-depth clinical and laboratory examination of the patient, providing the required amount of psychological assistance and determine the mode of further medical observation, including the need of ART.

The current seroepidemiological monitoring data show that much larger number of positive test results for HIV is confirmed at the *AIDS LRC* laboratory than the number of

officially registered cases of HIV infection. This means that some patients with HIV infection remain out of sight of the health facilities and they are not getting adequate amount of medical and psychological assistance. This statement is confirmed by the fact that since 2008 the number of HIV-infected people detected because of the disease clinical signs is growing every year in the region, namely 27.5% of all examined here in 2014 compared to data for 2010-2013 years, where the rates fluctuated in the range of 18.4%-24.5%. It means that people knowing about their risky behaviors address the health care establishments and are tested only when there are clinical signs of disease. Late visit to a doctor may be critical for many of them in terms of the inability to improve their health, and on the other hand – the leading role of these people as potential sources of infection to their sexual partners or immediate surroundings. This once again confirms the importance and need for the secondary prevention of HIV infection.

As of 01.10.2015 1,108 of adult patients (aged 18 and older) with HIV/AIDS receive free antiretroviral therapy according to the Clinical Protocol (96.9% of the needy), children – 41 (93.2%).

Thus, these data indicate the need for early detection and significant improvement of medical and social and psychological assistance for patients with HIV infection, regardless of the disease clinical stage. Particularly important role is played by close cooperation of *LRC AIDS* with the Lviv regional pulmonology center (if HIV is combined with tuberculosis), with the Regional state drug abuse clinic (HIV infection and drug addiction), with the Regional clinical infectious hospital (HIV and viral hepatitis), with the Regional psychiatric hospital (mental impairment in HIV-infected). *AIDS LRC* established cooperation with institutions both with the State Penitentiary Service of Ukraine in Lviv region and the Ministry of Defence of Ukraine. In particular, in 2013 the medical service of SPS of Ukraine in Lviv region took 78% of prisoners under medical supervision and in 2014 – 100%.

Programs for HIV prevention are implemented in the region: men who have sex with men – *Avante* Charitable Foundation; among sex business women and injectors – *Salus* CF; among prisoners (together with the social adaptation of drug addicts released from prison) – *Doroha* Social Organization, the regional branch of the “All-Ukrainian Network of People Living with HIV/AIDS” All-Ukrainian Charitable Organization for the creation and support of local coordination mechanisms on HIV/AIDS. The above projects are implemented not only at the regional center, but also in other cities and districts. For the purpose of rapid tests for HIV and other infections, information about HIV/AIDS and psychological support mobile clinic have actively worked since 2012 in various cities and districts. An important component of activities of organizations aimed at the stabilization

of the HIV epidemic is enhancing public awareness about the modes of infection transmission, establishing skills of responsible behavior to prevent infection, especially among young people, and access to testing for HIV infection [7, 13].

CONCLUSIONS

1. In 2014 the incidence of HIV infection in Lviv region was 19.4 per 100 thousand of people, which was much lower compared to other regions of Ukraine.
2. For the analyzed period, growth rate of deaths from AIDS-related illnesses decreased by 5 %, and the most common were lung and extrapulmonary tuberculosis.
3. HIV is prevails among the residents of regional centers and among males belonging to the injectors group.
4. The number of 15-24 year-olds is increasing among HIV-infected people, 1-2 cases of sexual infection among 15-16 year-olds are registered annually.
5. Sexual transmission of infection is dominant but increasingly through sexual contacts with injectors.
6. The percentage of HIV-positive results among pregnant women and donors remains almost unchanged, indicating the trend of epidemic stabilization among general population.
7. The collaboration of AIDS LRC with relevant clinical institutions and Penitential service bodies is established in Lviv region.
8. The primary tasks for averting HIV prevalence in the region is the widespread adoption of preventive measures aimed at reducing the number of new cases of HIV infection among injectors; raising public awareness on measures to prevent HIV infection by promoting healthy lifestyles, in particular among young people; empowerment of treatment, care, and support for HIV-infected and AIDS patients (development of hospice and palliative care).

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РЕЗЮМЕ

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ОСОБЛИВОСТІ ЕПІДЕМІОЛОГІЧНОЇ СИТУАЦІЇ З ВІЛ-ІНФЕКЦІЇ/СНІДУ У ЛЬВІВСЬКІЙ ОБЛАСТІ ЗА 2014 РІК

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У статті викладено короткий аналіз епідеміологічних особливостей ВІЛ-інфекції у Львівській області за 2014 рік. Визначено і проаналізовано причини зростання показника захворюваності на СНІД порівняно з 2013 роком. Опрацьовано дані щодо поширення ВІЛ інфекції у групах найбільш високого ризику інфікування ВІЛ, а також серед вагітних і донорів. Виявлено, що статевий шлях передачі збудника є домінуючим у Львівській області. Проаналізовано вікові та статеві особливості поширення ВІЛ-інфекції. Охарактеризовано міжсекторальні підходи та організаційні заходи, що впроваджені на сучасному етапі з метою раннього виявлення та лікування ВІЛ-інфікованих осіб. Визначені проблеми та першочергові завдання щодо протидії ВІЛ-інфекції/СНІДу на майбутнє.

Ключові слова: ВІЛ, СНІД, споживачі ін'єкційних наркотиків, вагітні, донори, антиретровірусна терапія, профілактичні заходи.

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