

V. P. Melnyk, T. G. Khursa, Y. O. Yakymova PREVALENCE OF TB/HIV CO-INFECTION AMONG THE RESIDENTS OF THE LEFT BANK PART OF KYIV CITY

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РОЗПОВСЮДЖЕНІСТЬ КО-ІНФЕКЦІЇ ТБ/ВІЛ СЕРЕД ЖИТЕЛІВ ЛІВОГО БЕРЕГА МІСТА КИЄВА

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Резюме

Обстежено 503 хворих на ко-інфекцію ТБ/ВІЛ. Виявлено зростання показника захворюваності (в 1,6 разів) та поширеності (в 2 рази) на ко-інфекцію ТБ/ВІЛ у період 2012–2015 рр. разом з прогресуючим зростанням захворюваності на ТБ (майже в 2 рази). Встановлено поступове зменшення питомої ваги інфільтративного туберкульозу (з 76,5 % до 54,5 %) та зростання питомої ваги дисемінованого туберкульозу (з 17,1 % до 40,9 %). Виявлено високу летальність хворих від ко-інфекції ТБ/ВІЛ, яка в 1,4 рази вища, ніж при туберкульозі без ВІЛ-інфекції.

Ключові слова: ко-інфекція ТБ/ВІЛ, захворюваність, поширеність, смертність.

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РАСПРОСТРАНЕННОСТЬ КО-ИНФЕКЦИИ ТБ/ВИЧ СРЕДИ ЖИТЕЛЕЙ ЛЕВОГО БЕРЕГА ГОРОДА КИЕВА

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Резюме

Обследовано 503 больных ко-инфекцией ТБ/ВИЧ. Отмечен рост показателя заболеваемости (в 1,6 раза) и распространенности (в 2 раза) ко-инфекции ТБ/ВИЧ в период 2012–2015 гг. вместе с прогрессирующим ростом заболеваемости ТБ (почти в 2 раза). Установлено постепенное уменьшение удельного веса инфильтративного туберкулеза (с 76,5 % до 54,5 %) и рост удельного веса диссеминированного туберкулеза (с 17,1 % до 40,9 %). Выявлена высокая летальность больных от ко-инфекции ТБ/ВИЧ, которая в 1,4 раза выше, чем при туберкулезе без ВИЧ-инфекции.

Ключевые слова: ко-инфекция ТБ/ВИЧ, заболеваемость, распространенность, смертность.

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At the beginning of the 3rd millennium a significant increase of incidence of tuberculosis (TB) and human immunodeficiency virus (HIV) infection became a global problem, reaching epidemic scale in Ukraine as well.

In 2015, there were an estimated 10,4 million new TB cases worldwide, of which 5,9 million (56 %) were among men, 3,5 million (34 %) among women and 1,0 million (10 %) among children. In 2015 TB claimed the lives of 1,8 million people, including 0,4 million HIV-positive (more than 4900 people die every day from TB in the world). The total number of people who died from HIV infection in 2015 approached 1,2 million [1, 2].

Currently Ukraine belongs to the group of countries with high level of tuberculosis incidence and HIV/AIDS epidemic [2, 3].

One of important problems of TB control in Ukraine is continuing increase of incidence and mortality from TB/HIV co-infection. Each year the number of people, living with HIV/AIDS, increases [3].

The aim was to carry out the analysis of an epidemiological situation on TB/HIV co-infection among the residents of the Left Bank part of Kyiv in 2012–2015 years.

Objectives: to study the incidence and mortality of TB/HIV co-infection; to find out the major clinical forms of tuberculosis in HIV-positive people and patients with AIDS; to study age structure of patients; to define life expectancy of patients with TB/HIV co-infection.

Materials and methods

503 TB/HIV cases, registered at Kyiv City Tuberculosis Hospital № 1 with dispensary department from 2012 to

2015, were analyzed. Statistical data, outpatient cards and medical records of inpatients were studied.

Results and discussion

From 2012 until 2015 overall 2150 cases of tuberculosis were registered in Left Bank of the Kyiv city (The Desnianskyi, Dniproviskyi and Darnytskyi raions): 400 cases — in 2012 (39,2 per 100000 population), 571 — in 2013 (55,3 per 100000 population), 494 — in 2014 (47,9 per 100000 population), 685 — in 2015 (65,3 per 100000 population). The incidence of TB progressively increases (two-fold increase from 2012 till 2015).

From 2012 till 2015 in total 1903 cases of HIV infection were registered in Kiev (Left Bank): 524 — in 2012 (51,36 per 100000 population), 528 — in 2013 (51,2 per 100000 population), 455 — in 2014 (44,12 per 100000 population) and 396 — in 2015 (37,73 per 100000 population). Thus, 1,4 times decrease of HIV infection incidence is observed in 2015 in comparison with 2012.

For evaluation of an epidemiological situation on TB/HIV co-infection in Kiev city for the period of 2012–2015 years 503 medical records of TB/HIV patients from Kyiv City Tuberculosis Hospital № 1 with dispensary department were analyzed.

It was established that in 2012 there were 87 patients with this co-morbidity (8,5 per 100000 population), in 2013 — 136 patients (13,2 per 100000 population), in 2014 — 91 (8,8 per 100000 population), and in 2015 — 189 patients (14,25 per 100000 population) registered.

The sex distribution of patients revealed 376 men and 127 women, registered during studied period of time. Or by year: 2012 — 58 men (66,7 %) and 29 women (33,3 %), 2013 — 98 men (72,0 %) and 38 women (28 %), 2014 — 80 men

(87,9 %) and 11 (12,1 %) women, 2015 — 140 (74 %) men and 40 (26 %) women. These figures identified men (74,75 %) as predominant population for this condition.

The age of TB/HIV patients in 2012–2015 varied from 20 to 60 years. According to the age structure the patients were divided into the following groups: 20–30 years — 70 patients (13,92 %), 31–40 years — 321 patients (63,82 %), 41–50 years — 87 patients (17,29 %) and 51–60 years — 25 patients (4,97 %).

Analyzing the data we detected an increase of TB/HIV co-infection incidence in 2012–2015 and related increase of the incidence of TB alone. At the same time the incidence of HIV infection tended to decrease (Figure 1).

(including 11654 citizens of Ukraine and 52 foreigners). 532 cases were children under 14 years (178 with confirmed diagnosis of HIV infection, and 354 — suspected).

An unfavorable situation with HIV infection was supported by the following statistics: in Desnianskyi raion the prevalence of HIV infection was 366,2, in Dniprovskyi — 410 and in Darnytskyi — 400 per 100000 inhabitants.

The number of TB/HIV co-infection cases among Left Bank inhabitants in 2012 reached 101 (9,9 per 100000 population), in 2013 — 164 cases (15,9 per 100000 population), in 2014 — 128 cases (12,4 per 100000 population) and in 2015 — 216 cases (20,49 per 100000

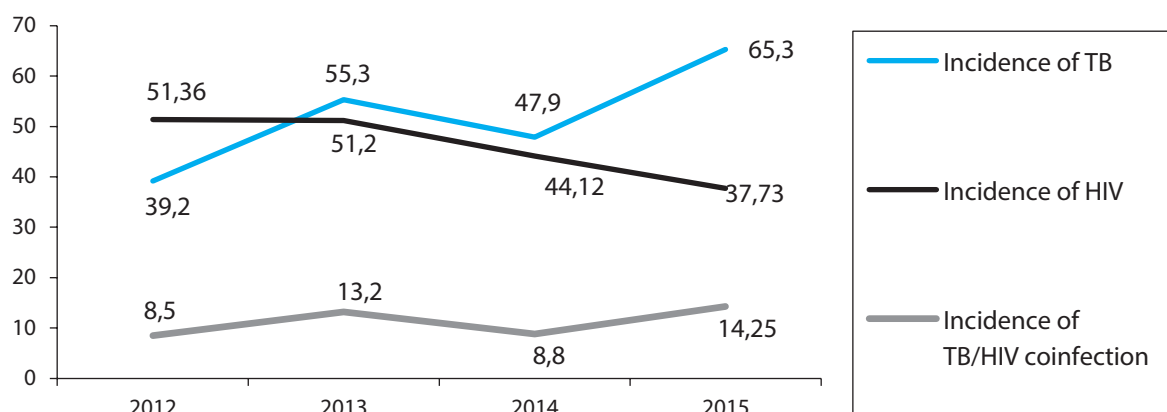


Figure 1. Incidence of TB, HIV and TB/HIV co-infection among the residents of Left Bank part of Kyiv in 2012–2015 (per 100000 inhabitants).

For the purpose of more detailed evaluation the prevalence of TB, HIV/AIDS and TB/HIV co-infection was analyzed among inhabitants of the Left Bank part of Kyiv.

It was found out that total number of new and previously registered cases (all patients with active TB from dispensary registry) in 2012 was 423 cases, in 2013 — 573 cases, in 2014 — 581 cases and in 2015 — 794 cases (Figure 2).

Thus, it is possible to trace stable increase of TB prevalence among the residents of all three raions, studied by us.

As of 01.01.2016 the total number of the HIV-positive cases, registered at AIDS Kyiv City Center was 11706

inhabitants). So, 2-fold increase of TB/HIV co-infection prevalence was observed since 2012.

The structure of TB in TB/HIV co-infection patients was as follows. Pulmonary TB — 31,8 % — in 2012, 26,8 % — in 2013, 34,1 % — in 2014, and 31,47 % — in 2015. Both pulmonary and extrapulmonary TB: 60,3% — in 2012, 64,4% — in 2013, 56,3% — in 2014 and 56,13% in 2015 (Figure 3). Extrapulmonary TB alone was revealed quite rarely — in 10 % of all TB/HIV patients in 2012–2015 years.

Among HIV-infected patients 64,25 % of cases were infiltrative TB. During 2012–2015 the share of this form gradually decreased from 76,5 % in 2012 to 54,5 % in 2015.

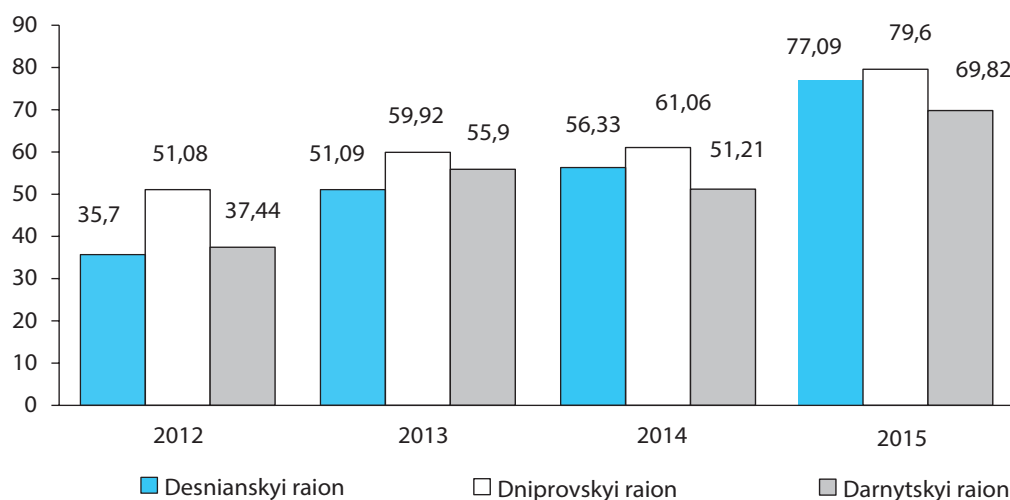


Figure 2. Prevalence of TB among the population of Left Bank of Kyiv (per 100000 inhabitants).

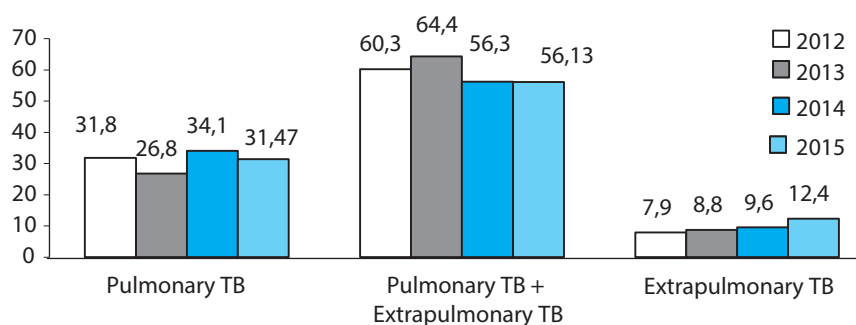


Figure 3. The prevalence of pulmonary and extrapulmonary TB in patients with TB/HIV co-infection among population of Left Bank of Kyiv during 2012–2015.

Disseminated tuberculosis was diagnosed on average in 29,7 % of patients. Unlike infiltrative TB, the share of disseminated TB (17,1 % of cases 2012) increased (40,9 % in 2015). Focal tuberculosis was revealed in 3,2 % of patients on average. Within 4 years its share varied from 4,1 % to 1,2 % without any regularity. Other clinical forms of pulmonary (fibrous-cavernous, cirrhotic TB of lungs and tuberculoma) were observed sporadically.

The lymphatic node lesions were found in 57 % of all cases forms of extrapulmonary tuberculosis registered in 2012–2015. In 15,2 % of cases a miliary tuberculosis was revealed. In 13,6 % of cases tuberculous pleurisy was diagnosed. In 4,2 % of patients an intestinum tuberculosis was found. Other forms, such as central nervous system and cerebral membranes, reproductive system and vertebral TB were found in 10 % of patients.

Thus, the share of a TB/HIV co-infection among all TB patients was 23,4 %. Among HIV/AIDS patients the TB/HIV co-infection share was 26,43%.

Among the new cases the share of TB/HIV co-infection was 75,75 % (381 persons): 79,31 % (69 cases) — 2012, 91,18 % (124 cases) — in 2013, 56,04 % (51 cases) — in 2014 and 72,49 % (137 cases) — in 2015. Among tuberculosis relapses the share of TB/HIV co-infection was 24,25 % (122 cases): 20,69 % — in 2012 (18 cases of TB/HIV co-infection), 8,82 % — in 2013 (12 cases), 43,96 % — in 2014 (40 cases) and 27,51 % — in 2015 (52 cases).

Determining prognosis of TB/HIV co-infection, it was important to find out an average life expectancy of the patients.

The mortality in TB/HIV patients in 2012–2015 was 31 % (121 lethal cases from 387 registered). The outcome in 116 patients cases was unknown: patients were lost to follow-up. Among initially HIV diagnosed cases 59 % of patients died. In 25,9 % of these patients death occurred in the 1st year, in 53,6 % of patients — in the 2nd year, in 12,3 % — in the 3rd year, 3,2 % — died on the 4th year and in 5 % — in the 5th year. 24,8 % of lethal cases were initially diagnosed with TB. The lethality from simultaneously diagnosed HIV/AIDS and TB was 16,2 %. Thus, a significant increase in the proportion of deaths due to TB/HIV co-infection in 2015 comparing with 2012 (3-fold) was revealed (Figure 4).

Conclusions

Current survey demonstrated an increase of the incidence (about 1,6 times) and the prevalence (about 2 times) of TB/HIV co-infection for the period 2012–2015 years among TB patients from Left Bank part of Kiev city. At the same time the incidence of HIV infection decreased. A predominantly affected population group were men (74,75 %) aged 31–40 years (63,82 %). Each year the share of a TB/HIV co-infection, both among TB patients, and among HIV-positives increases. Same is for the share of TB/HIV co-infection among patients with TB relapses.

Gradual decrease of a share of infiltrative tuberculosis (from 76,5 % in 2012 to 54,5 % in 2015) and increase of a share of disseminated tuberculosis (from 17,1 % in 2012 to 40,9 % in 2015) were revealed.

In the structure of TB/HIV co-infection the incidence pulmonary + extrapulmonary TB prevailed. In the contrast,

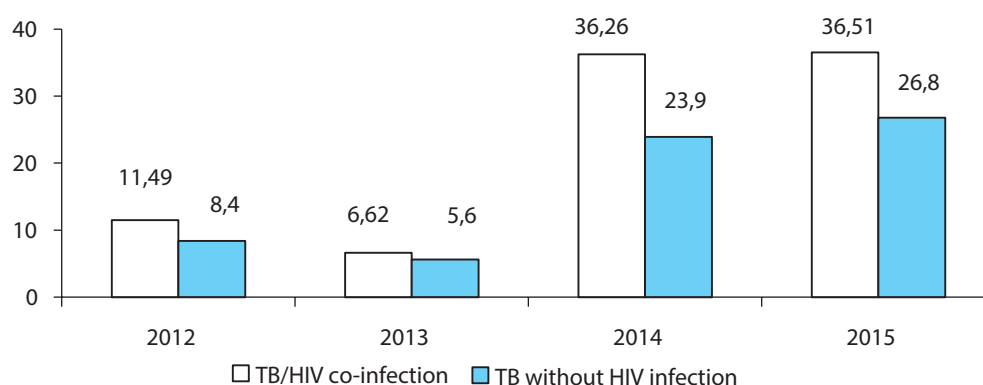


Figure 4. Mortality from TB/HIV co-infection in comparison with TB alone during 2012–2015 (%).

the incidence of TB without HIV infection prevailed in general structure of TB incidence. Extrapulmonary TB in HIV-infected was registered sporadically.

Each year the lethality from a TB/HIV co-infection (which is 1,4 times higher, than those from tuberculosis in

HIV-negative patients) increases. 79,5 % of patients with co-morbidity die within 2 years after the diagnosis.

In general, the results of the survey among the inhabitants of the Left Bank part of Kyiv city suggest the unfavorable epidemiological situation with TB/HIV co-infection.

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