



EPIDEMIOLOGICAL FEATURES OF HYPERGLYCEMIA AND MICROELEMENTOSIS IN POPULATIONS OF HIV-INFECTED

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✓ Resume

The issues of comorbidity of HIV and chronic nonspecific diseases were and are one of the most important in the study of epidemiology and prevention of risk factors for secondary somatic diseases or complications among the HIV-infected population. One of these chronic diseases is diabetes mellitus, which leads to a violation of metabolism and microelements. The study found that among the HIV-infected population aged 20-69 years, hyperglycemia was diagnosed with a frequency of 27.0%, its prevalence was significantly higher in men (30.7%) than in HIV-infected women (23, 6%). This one says that screening for the presence of diabetes should be checked regularly and much earlier in people with HIV infection, in order to prevent irreversible complications and improve the patient's quality of life.

Keywords: Epidemiology, risk factors, population, HIV-infected, hyperglycemia, microelementoses

ЭПИДЕМИОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ГИПЕРГЛИКЕМИИ И МИКРОЭЛЕМЕНТОЗОВ В ПОПУЛЯЦИИ ВИЧ-ИНФИЦИРОВАННЫХ

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✓ Резюме

Вопросы коморбидности ВИЧ и хронических неспецифических заболеваний были и есть одними из важных при изучении эпидемиологии и особенности профилактики факторов риска вторичных соматических заболеваний или осложнений среди ВИЧ-инфицированной популяции. Одним из таких хронических заболеваний является сахарный диабет, ведущий за собой нарушение обмена веществ и микроэлементов. В ходе исследования было выявлено, что среди ВИЧ-инфицированной популяции в возрасте 20-69 лет гипергликемия диагностировалась с частотой 27,0%, её распространенность была достоверно выше у мужчин (30,7%), чем у ВИЧ-инфицированных женщин (23,6%). Это говорит о том, что скрининг на наличие диабета необходимо проводить регулярно и намного раньше у людей с ВИЧ-инфекцией, в целях предотвращения необратимых осложнений и улучшения качества жизни пациента.

Ключевые слова: Эпидемиология, факторы риска, популяция, Вич-инфицированные, гипергликемия, микроэлементозы

OIV INFEKTSION AHOLIDAGI GIPERGLIKEMIYA VA MIKROELEMENTOZALARNI EPIDEMIOLOGIK XUSUSIYATLARI

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OIV infektsiyasi va surunkali nospetsifik kasalliklarning qo'shma kasalliklari epidemiologiyani o'rganish va OIV bilan kasallangan aholi o'rtasida ikkilamchi somatik kasalliklar yoki asoratlarni keltirib chiqarishi mumkin bo'lgan xavf omillarining oldini olishda eng muhim masalalardan biri bo'lgan va hisoblanadi. Ushbu surunkali kasalliklardan biri diabetes mellitus bo'lib, metabolizm va mikroelementlarning buzilishiga olib keladi. Tadqiqot shuni ko'rsatdiki, 20-69 yoshdagi OIV bilan kasallangan aholi orasida giperglikemiya 27,0% chastota bilan tashxislangan, uning tarqalishi erkaklarda (30,7%) OIV bilan kasallangan ayollarga (23, 6%) nisbatan ancha yuqori. Bu skriningsni aytadi

Qandli diabetning mavjudligi OIV infektsiyasi bilan og'rigan odamlarda tuzatib bo'lmaydigan asoratlarni oldini olish va bemorning hayot sifatini yaxshilash uchun muntazam ravishda va ancha oldin tekshirilishi kerak.

Kalit so'zlar: Epidemiologiya, xavf omillari, aholi, OIV bilan kasallanganlar, giperglikemiya, mikroelementozlar



Relevance

The last two decades have been marked by significant advances in the epidemiology of chronic noncommunicable diseases (CND), and the issues of early epidemiological diagnosis of these diseases, especially the nature of their risk factors in individual countries or populations, primarily in the HIV-infected population, remain a priority in modern science. [7,9]. Today, the problem of HIV/AIDS remains one of the major problems of global public health. Hence, an important task of modern research is to study the epidemiology and prevention of risk factors for secondary somatic diseases or their complications / therapeutic continuum among the HIV-infected population.

The literature indicates the presence of more than 200 different risk factors (RFs), the most important of which are dyslipidemia, arterial hypertension (AH), smoking, hyperglycemia, diabetes mellitus, overweight (BMI), obesity, low physical activity, hereditary predisposition and violation of the blood coagulation system [1,2,6,8]. The impact of these risk factors on the development of CHD is very high and they are characterized by the highest prevalence among the population [3,4,5].

Diabetes is one of the most important and global health problems. Experts take it upon themselves to predict an increase in the number of patients with this disease to 8.7%. Oddly enough, but there is another statistical reality that the number of HIV-infected people with diabetes will increase to 15%. So, what is HIV, and what does diabetes have to do with it? HIV infection, as we know, is a socially significant disease that occurs as a result of infection with the human immunodeficiency virus (HIV), which affects the immune system and makes the body susceptible to opportunistic infections. In turn, diabetes mellitus is a chronic disease resulting from the inability of the pancreas to produce sufficient amounts of insulin, or vice versa, the inability of the body to use the insulin it produces sufficiently effectively (WHO, 2016). These two very formidable, disabling diseases belong to the group of chronic diseases that are of a protracted nature, with the ability to progress, change or go into remission. (Helgeson V.S., Zajdel M., 2017). They show their similarity in depressive states against the background of the disease, which have a detrimental, negative effect on the psyche and quality of life of the patient, on the course of his illness and, consequently, on the process of gradual introduction, or figuratively speaking, the engraftment of the disease into the patient's daily life (Snoek et al., 2006). In diabetes mellitus, there is a complete metabolic disorder, leading to microelementosis. Trace elements (MEs) have a significant impact on metabolic processes in the body and are in close contact with enzymes, hormones, vitamins and other biologically active compounds. The content of ME in tissues and biological fluids is a valuable diagnostic feature in many diseases and pathological conditions [3]. Their participation in the mechanisms of the immune response and the activity of the immune system has been proven.

Human immunodeficiency virus (HIV) infection is a chronic disease that causes functional impairment in virtually all body systems. In patients with HIV, weight loss is one of the characteristic manifestations of the disease. Excessive weight loss of more than 5% is associated with the development of the disease. The combination of non-sustaining nutrition and increased energy expenditure at rest leads to fatigue, especially during the onset of secondary illnesses. Protein starvation is manifested in people with HIV, and this is a factor that leads to a decrease in the function of T-lymphocytes and activation of the complementary system, which is accompanied by a deterioration in well-being. Numerous studies have shown that hypertension, diabetes mellitus, alcohol abuse, smoking, malnutrition, physical inactivity, microelementosis (MTOS) and lipid metabolism are important risk factors [2,6,8].

The aim of the study: Our study was to study and evaluate the epidemiological features of hyperglycemia and trace elements among the HIV-infected population.

Material and methods

A representative sample of the HIV-infected population of Andijan aged 20 to 69 years in the amount of 507 people was examined. The study was conducted jointly with the Andijan Regional Center for AIDS Prevention and Control among 263 women and 244 men.

A comprehensive study was conducted using standardized and unified survey, instrumental and biochemical methods. The applied scientific approach is approved in modern research and recommended by international experience for wide use [236, WHO, 2005].

Result and discussion

The prevalence of HGG (hyperglycemia) in the population of HIV-infected people in the city of Andijan was studied. Next, an analysis of the prevalence of hyperglycemia (GGL) in the population of HIV-infected people was carried out, depending on sex and age.

Table 1 shows the data of our analysis in this direction in women and men, as well as in the general population of HIV-infected people.

Table 1

Resource requirements by component
Prevalence of hyperglycemia in the HIV-infected population aged 20-69 years

Groups of surveyed	N	Prevalence of hyperglycemia	
		Abs.	%
Female population	263	62	23,6
Male population	244	75	30,7
General population of HIV-infected people	507	137	27,0

The data showed that among the HIV-infected population aged 20-69 years, GGL is diagnosed with a frequency of 27.0%. It was noted that the prevalence is significantly higher in men (30.7%) than in women infected with HIV (23.6%); $P < 0.05$.

According to our data, with age, the detection of GGL in the surveyed population of HIV-infected patients increases significantly (Fig. 1).

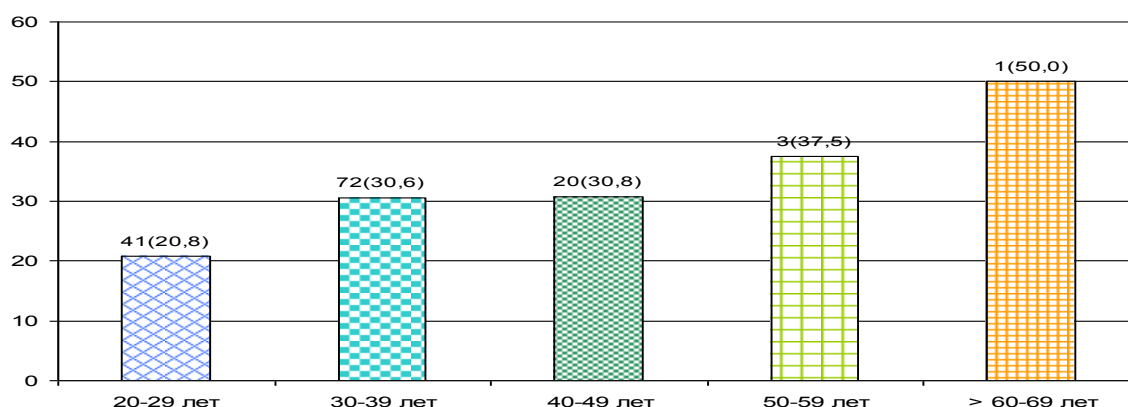


Fig. 1. Prevalence of hyperglycemia in the HIV-infected population depending on age, n (%)

It was found that the detection of hyperglycemic syndrome in HIV-infected patients varies significantly in different age groups by more than 2.4 times ($P < 0.01$). In the age group of 20-29 years, GGL is observed in every 5th HIV-infected patient (20.8%); in 30-39 years - the frequency is 30.6%, that is, 40-49 year old patients, HCG is detected with an insignificant increase in the level of not more than 30.8% ($P > 0.05$), in the age group of 50-59 years, the frequency is 37.5%, and in the group of patients $\geq 60-69$ years - HGG is diagnosed with the highest frequency (50.0%), that is, an increase compared to its indicators in the previous group by 12.5% or 1.3 times ($P < 0.05$).

These studies once again prove that the presence of hyperglycemia is a fairly common factor, and with timely detection, it is possible to avoid skipping diabetes. With age, the risk of diabetes doubles, that is, age has become another risk factor, and in combination with HIV infection, this risk doubles. Screening should be done much earlier, taking into account HIV infection, than for patients without HIV.

We also studied and assessed the state of micronutrients (MTPH) in HIV-infected populations. The results of the analysis of our study show (Table 1) that in HIV-infected populations, MTOZ was detected with a high frequency (85.2%).

Table 1 Resource requirements by component
Prevalence of MTOZ among HIV-related populations aged 20-69 years

Verified Groups	N	Prevalence and severity of VIOLATIONS of MTOZ, n(%)			
		Moderate MTOZ (1)	Pronounced MTOZ with S-crushers (2)	Severe MTOZ (3)	Total
Women	263	4 (15,6)	68 (25,6)	99 (37,6)	208 (79,1)
Men	244	53 (21,7)	77 (16,8)	94 (38,5)	224 (91,8)
Total HIV-infected	507	94 (18,5)	145 (26,9)	193 (38,2)	432 (85,2)

MTHOS is observed in men (91.8%), women (79.1%), $P<0.05$. The highest prevalence of MTHOs, in their severe forms (38.2%), medium and severe MTOZ, occurs with a relatively low frequency - at 18.5% ($P<0.05$) and 26.9% ($P<0.05$), respectively.

Depending on age, the detection rate of MTOZ increases by more than 1.5 times or by 27.2% ($P<0.05$). An increase in the incidence of MTOZ is most common in the age groups aged 30 to 39 years (74.5%), 40-49 years (93.2%) and >50 -59 years (100.0%).

As the age of patients increases, in severe forms of MTHOS, there is a direct linear increase in the incidence: from 51.1% at the age of 20-29 years to 59.9% at the age of 30-39 years ($>0.9\%$ 05%), 74.0% - at the age of 40-49 years ($R<0.05$) and up to 81.8% - >50 -59 years ($R<0.05$).

Moderate to severe LEVELS of MTOZ in different age groups of HIV test patients were diagnosed with the following differences: 20-29 years - 9.3% and 29.4% ($P<0.001$), 30-39 years - to 15.5% and 24.8% ($P<0.05$), 40-49 years - 7.4% and 17.6% ($P<0.01$) and 50-59 years - 9.1% and 18.2% ($P<0.01$), respectively.

It is important to note that micronutrient disorders are more aggressive from the age of 30 years, and a relatively low incidence of MTHOS is observed in young patients.

Thus, the frequency of MTOZ under the age of 30 years was 72.8%, and after 30 years - 89.2% ($P<0.05$).

Conclusions

Thus, HIV patients need to be screened for diabetes, preferably before antiretroviral therapy, as well as after blowing every 3 months. increase, thereby exacerbating the course of HIV infection against the background of an immunodeficiency state, leading to irreversible complications. The results of our study showed that GGL makes a significant contribution to the formation of epidemiological conditions of the therapeutic continuum in the HIV-infected population, so it is necessary to take this fact into account when developing preventive measures.

The awareness and awareness of practitioners about the need for patients with HIV to maintain micronutrient status will help prevent therapeutic continuity and make an important contribution to risk reduction. Insufficient knowledge of the composition of trace elements in HIV-infected patients is the basis of the goal of their comprehensive study and determination of their interest in the pathogenesis of diseases.

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