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## **NOSOMORPHOSIS OF DISEASES CAUSED BY UROGENITAL INFECTIONS**

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**Abstract.** *Nosomorphosis of diseases caused by urogenital infections. Diudiun A.D., Polion M.Y., Polion N.N. One of the real threats to the health of the next generation are diseases caused predominantly by sexually transmitted infections (STIs). The frequency of these diseases is constantly increasing among the population of Ukraine and other countries. The aim of our work was to establish the features of the clinical manifestations of diseases caused by urogenital infections (UGI) at the present stage. Under our supervision, there were 577 patients with STIs, 83% of the patients were at the age of the highest socio-economic and sexual activity. A complex of methods for examining the patients included: physical and general clinical studies, laboratory research to identify STIs and conditionally pathogenic microorganisms. A comprehensive complex examination made it possible to identify urogenital chlamydia in 395 (68.5%), trichomoniasis – in 381 (66.03%), ureaplasmosis – in 240 (41.6%), microorganisms associated with bacterial vaginosis – in 80 (13.9%) and urogenital candidiasis – in 75 (13.0%). Monoinfection was diagnosed only in 61 (10.6%) of patients. Among the patients examined, the inflammatory process of the genitourinary organs was supported by two infectious agents in 487 (84.4%), three or more – in 52 (9.0%) of the observed patients. The affection of the urogenital system with STIs occurs with several infectious agents. Clinical manifestations of diseases caused by STIs are asymptomatic or low-symptomatic. The asymptomatic course of diseases caused by STIs leads to a chronic long-term course of the pathological process with the formation of multi-focal lesions and residual phenomena, including proliferative neoplasms.*

**Реферат.** *Нозоморфоз захворювань, викликаних урогенітальними інфекціями. Дюдун А.Д., Поліон Н.Ю., Поліон Н.М. Однією з реальних загроз здоров'ю наступного покоління є захворювання, викликані інфекціями, що переважно передаються статевим шляхом. Частота цих захворювань постійно збільшується серед населення України та інших країн. Метою нашої роботи було встановлення особливостей клінічних проявів захворювань, що викликаються урогенітальними інфекціями (УГІ) на сучасному етапі. Під нашим спостереженням перебувало 577 пацієнтів з інфекціями, які передаються статевим шляхом (ІПСШ), 83% з них були у віці найбільшої соціально-економічної та сексуальної активності. У комплекс методів обстеження хворих включені: фізикальне й загальноклінічне дослідження, лабораторні дослідження на виявлення ІПСШ та умовно-патогенних мікроорганізмів. Комплексне обстеження дозволило виявити урогенітальний хламідіоз у 395 (68,5%) пацієнтів, трихомоніаз у 381 (66,03%), уреаплазмоз у 240 (41,6%), у 80 (13,9%) – мікроорганізми, що асоційовані з бактеріальним вагінозом, і в 75 (13,0%) – урогенітальний кандидоз. Моноінфекція діагностована тільки в 61 (10,6%) пацієнта. Серед обстежених нами хворих запальний процес сечостатевої системи підтримувався двома інфекційними агентами в 487 (84,4%), трьома і більше – у 52 (9,0%) спостережуваних хворих. Ураження сечостатевої системи ІПСШ відбувається при наявності декількох інфекційних агентів. Клінічні прояви захворювань, викликаних ІПСШ, були безсимптомними або малосимптомними. Безсимптомний перебіг захворювань, викликаних ІПСШ, призводить до хронічного тривалого перебігу патологічного процесу з утворенням декількох вогнищевих уражень і резидуальних явищ, у тому числі проліферативних новоутворень.*

One of the real threats to the health of the next generation are diseases caused predominantly by sexually transmitted infections. The frequency of these diseases is constantly increasing among the population of Ukraine and other countries [6, 10, 11].

The increase in the incidence of urogenital infections (UGI) among the population is explained by a number of moral, socio-economic and other causal factors. One of the reasons for the growth of UGI is the medical factor [2, 7, 13].

It is well known that the spread of infectious diseases is regulated by certain mechanisms: the properties of the causative agent of the disease (virulence), the immune structure of patients (susceptibility to the disease), the characteristics of the mechanism of transmission of the pathogen [6, 8, 14].

The epidemiological features of UGI are primarily due to the unique properties of the causative agents of these infections, which on the background of ubiquitously changing sexual behavior, as well as a reduced immune status of the population, allows the incidence to become alarming [2, 8, 13].

Undoubtedly, the level of diagnosis in the network of medical institutions is the most important factor influencing the identification and recording of UGI [2, 10, 11]. An analysis of the incidence of UGI in Ukraine revealed significant fluctuations in the indicators, since they do not reflect the true incidence, but are an indirect indicator of the quality of diagnosis in different regions of the country [2, 5].

Nonspecific inflammatory and specific immune responses in the body's defenses against infectious agents have a common focus. The inadequacy of these responses often leads to increased susceptibility to pathogenic microorganisms, leading to the development of autoaggressive and sometimes neoplastic processes. Clinically, this manifests itself in the form of recurrent, torpid infectious conditions with a damage to other organs and systems.

Untimely diagnosis and rehabilitation of UGI leads to the formation of a subclinical inflammatory process. The absence or insignificant clinical manifestations of UGI are conditions that do not prompt the patient to go to a specialized medical institution for appropriate and adequate specialized care [7, 11, 12]. A long chronic course of the inflammatory process contributes to the development of dyspareunia, the appearance of contact bleeding in women, can cause infertility and miscarriage as well as the formation of tumor-like formations of urogenital organs is also possible. In cases of a prolonged asymptomatic course of the disease, the laboratory and instrumental methods of research can be of great determining importance in the diagnosis and medical tactics. Great importance is attached to bacterioscopic and bacteriological methods, PCR, ultrasound and pathomorphological examination of affected tissues [9, 10].

An adequate assessment of the characteristics of the pathogenesis of diseases caused by UGI ensures the provision of full and effective care at different stages of the inflammatory process.

The aim of our work was to establish the features of the clinical manifestations of diseases caused by UGI at the present stage.

#### MATERIALS AND METHODS OF RESEARCH

Under our supervision, there were 577 patients with STIs, men – 346 (60.0%), women – 231 (40.0%).

The research was conducted in accordance with the principles of bioethics set out in the WMA Declaration of Helsinki – “Ethical principles for medical research involving human subjects” and “Universal Declaration on Bioethics and Human Rights” (UNESCO).

A complex of methods for examining the patients observed included: physical and general clinical and laboratory studies provided by regulatory acts of the current legislation of the Ministry of Health of Ukraine; comprehensive clinical and laboratory research to identify STIs pathogens; clinical and instrumental examination of the organs of the genitourinary system, as well as microscopic and cultural studies to identify conditionally pathogenic microorganisms [4].

The largest number of patients with urogenital infections was at the age of 20-29 (355-61.5%) and 30-39 years (130-22.5%). According to their social status, the examined patients made up 288 students (49.9%), employees – 155 (26.9%), workers – 107 (18.5%), and rural residents – 19 (3.3%). More than 1.4% of patients did not indicate the livelihood.

Thus, more than 83% of the patients observed were at the age of the highest socio-economic and sexual activity, which significantly affects the economic and demographic processes in society.

The analysis of the data received was carried out with application of the program product Statistica 6.1. (StatSoftInc., серійний No. AGAR909E415822FA). The difference in indices with  $p < 0.05$  considered as probable one [1, 3].

#### RESULTS AND DISCUSSION

A comprehensive complex examination made it possible to identify urogenital chlamydia in 395 (68.5%), trichomoniasis in 381 (66.03%), ureaplasmosis in 240 (41.6%), in 80 (13.9%) microorganisms associated with bacterial vaginosis and in 75 (13.0%) – urogenital candidiasis. Mono-infection was diagnosed only in 61 (10.6%) of the examined patients (chlamydial – in 29 (5.0%) and trichomonas – in 32 (5.6%)) (Fig. 1). Among the patients examined, the inflammatory process of the genitourinary organs was supported by two infectious agents in 487 (84.4%), three or more – in 52 (9.0%) of the observed patients, which corresponded to a number of studies [5, 6].

Of the past diseases, the largest proportion falls on colds – 527 (91.3%), childhood infections – 247 (42.8%), diseases of the gastrointestinal tract – 197 (34.1%) (Fig. 2), and of the concomitant diseases, the largest proportion falls on the stomach and intestines pathology – 138 (23.9%) and urogenital organs – 79 (13.7%).

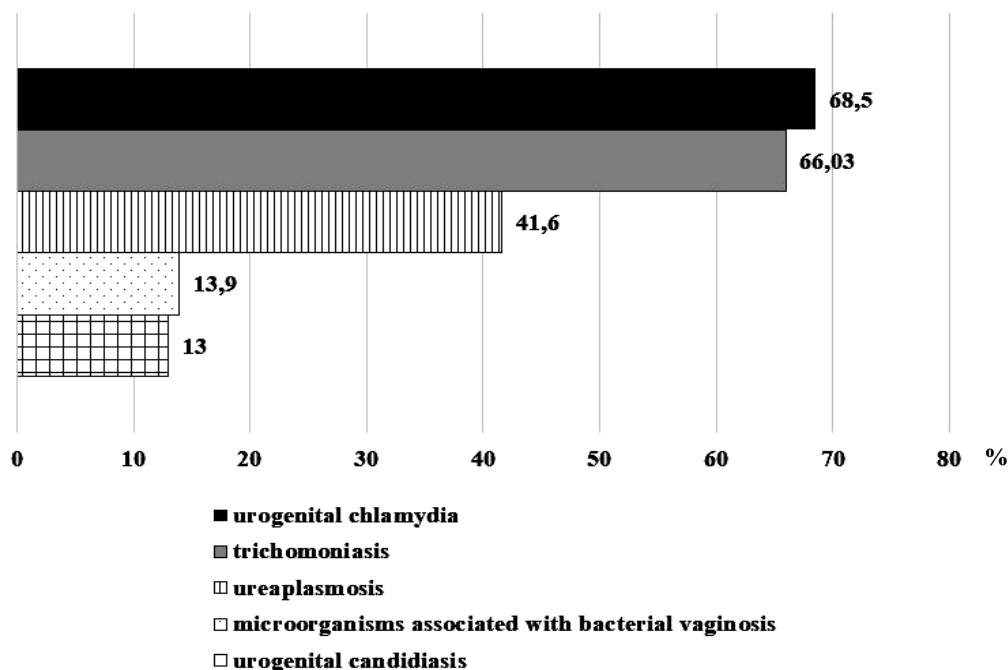


Fig. 1. Frequency of detection of urogenital infections in the examined patients (in %)

When planning the examination and treatment of patients with a disease caused by STIs, it is necessary to take into account both concomitant and past diseases, especially those of the gastrointestinal, endocrine and genitourinary systems.

The clinical manifestations of urogenital infections did not have pathognomonic clinical mani-

festations and, as a rule, were of little or asymptomatic nature. A feature of the clinical manifestations of STIs was the multiple nature of lesions (two or more topical lesions), the presence of residual phenomena of varying severity, and the simultaneous combination of two or more etiological factors as indicated by a number of authors [7, 12, 13].

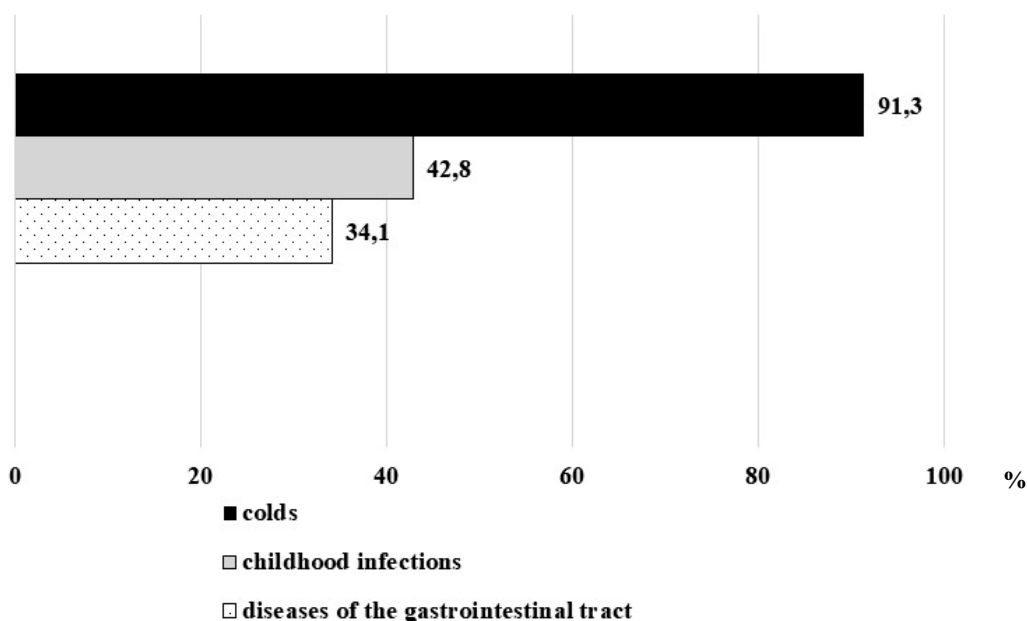


Fig. 2. Incidence of past diseases among the surveyed patients with urogenital infections (in%)

A carefully collected medical history did not make it possible to establish the timing of STI infection in 346 (60.0%) of the observed patients. In this group of patients, there were no clinical manifestations of the disease that could motivate patients to seek specialized medical care. In microbiological preparations of this group of patients, a small number of leukocytes, a large number of desquamative epithelial cells and abundance of both species and quantitative characteristics of microorganisms were determined.

Mixed urogenital infection leads to the formation of a pathological condition caused by several different types of infectious agents that are simultaneously involved in the development of the disease. The severity of clinical manifestations will depend on the quantitative and qualitative characteristics of the association of microorganisms and the condition of the macroorganism. Currently, the traditional views of scientists on bacteria as primitive microorganisms are changing. In modern microbiology, the emphasis of research is more on mixed microbial communities that regulate their behavioral reactions depending on environmental conditions and the status of the macroorganism [9, 11, 14].

The above clinical manifestations of UGI indicate that a pathological condition is formed in the structure of tissue reactions of urogenital organs, where there are no "classical" signs of the inflammatory process that would allow the doctor to interpret these changes as inflammatory, followed by examination and management of patients.

As a rule, in acute inflammation, the affected tissue quickly returns to normal functioning due to normalization of the vascular reaction, resolution and drainage of exudates and cellular detritus containing macrophages and lymphocytes. If in acute inflammation the tissue necrosis is pronounced, then its restoration occurs by regeneration or replacement of connective tissue with the formation of cicatricial changes and the formation of adhesions. When the etiological agent is not sanitized during the acute inflammatory response, a specific immune response develops, leading to the development of chronic inflammation, followed by regeneration and formation of residual phenomena,

including neoplasm processes, this should be considered by practical doctors.

144 (25%) of the examined patient had a moderate inflammatory reaction in cytological preparations with a small number of leukocytes and desquamative epithelial cells. Patients indicated moderate discharge and unexpressed subjective clinical manifestations of the pathological condition. And only 87 (15%) of the observed patients indicated the presence of pronounced clinical manifestations of urogenital infections. Among this group of patients, a strong inflammatory reaction prevailed in cytological preparations in the presence of a small amount of desquamative epithelial cells. Excretions from genitalia were serous-purulent in nature and were accompanied by various subjective sensations, which forced patients to seek specialized medical care [3, 5, 13].

Thus, the absence or insignificant clinical manifestations causes the duration of the pathological condition with further chronicization of the inflammatory process, multi-focal lesions and the development of residual phenomena, which is one of the features of diseases caused by STIs at the present stage.

#### CONCLUSIONS

Based on the data of modern literary sources and our own research, we can make the following conclusions:

1. The affection of the urogenital system with STIs occurs with several infectious agents.
2. Clinical manifestations of diseases caused by STIs are asymptomatic or low-symptomatic.
3. The asymptomatic course of diseases caused by STIs leads to a chronic long-term course of the pathological process with the formation of multi-focal lesions and residual phenomena, including proliferative neoplasms.
4. All of the above obliges practitioners to change the epidemiological understanding of STIs, the tactics of examining and comprehensive treatment of patients, taking into account etiology, clinical manifestations and topical lesion of organs and systems.

Conflict of interests. The authors declare no conflict of interest.

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