

Current Solutions for the Treatment of Patients with Urogenital Candidosis and Evaluation of Clinical and Mycologic Efficacy

F.N. Nuraliev.

Urgench branch of the Tashkent Medical Academy

Abstract : Objective of the study to determine clinical and mycological efficacy of urogenital candidiasis treatment in dynamics depending on sex and place of residence of patients.

Keywords: Urogenital candidiasis, vaginal candidiasis, treatment, clinical and mycological efficacy, fluconazole.

Candida yeast-like fungi are found in 30-50% of healthy individuals in cultures of sputum, feces, urine, scrapings from human mucous membranes. In human oral mucosa, its content is 46-52%, and in the vaginal mucosa of non-pregnant women, the excretion rate reaches 11-13%, increasing during pregnancy from 29% to 86%. In human feces, the frequency of isolation of these fungi reaches up to 80%, and on intact skin up to 9%. [7, 9].

Transformation of fungi from nonpathogenic microorganisms to aggressive pathogens, as well as infection from the outside occurs as a result of a decrease in the immune system of the body [1, 3, 5].

Candida spp has the peculiarity to influence the occurrence and course of infectious diseases caused by other pathogenic and/or opportunistic microorganisms. This influence is characterized by the effect on the patient's body and the pathogen [10].

Candidiasis infections do not spread from person to person, but they have serious medical and economic consequences. Candidiasis is multifocal and has a chronic, relapsing course [2, 8].

Objective of the study. To determine clinical and mycological efficacy of urogenital candidiasis treatment in dynamics depending on sex and place of residence of patients.

Materials and Methods. A total of 81 female and 15 male patients (cogroup) with urogenital candidiasis (UC) aged 18-55 years were examined. The age distribution of those examined gave the following results: 18-21 years, 2.1±1.4% (n=2), 22-30 years, 49.0±5.1% (n=47), 31-40 years, 36.4±4.9% (n=35), 41-50 years, 8.3±2.8% (n=8) and 50-60 years, 4.2±2.0% (n=4). The main group of patients was 22-30 and 31-40 years old.

The patients mainly lived permanently in Bukhara (n=46) and Khorezm provinces (n=50). Most of the patients in Bukhara province were rural residents (73.9±6.5%, n=34), in Khorezm province this indicator was slightly lower - 22.0±5.9% (n=11).

The distribution of patients by social status yielded the following results: workers and farm workers 52.1±5.1% (n=50), housewives 36.4±4.9% (n=35), students and female students 2.1±1.4% (n=2) and temporarily not working 9.4±3.0% (n=9). There were no employees or persons with higher education among the patients.

All ethical principles related to the recruitment of patients for medical research are based on the Declaration of Helsinki of the World Medical Association (Helsinki, 1964, last supplement, Seoul, 2008).

To verify the diagnosis of UC (for women, vaginal candidiasis), we used clinical examination methods generally accepted in dermatology [2, 6].

Identification of Candida spp was carried out in three stages: taking biological material from patients; microscopic examination; mycological examination - isolation of pure cultures and identification to species [7].

To determine the clinical and mycological efficacy of treatment, all patients were divided into 3 groups: Group 1 - female UC who received conventional treatment (OL) and the drug fluconazole (flunol) - 66 patients; Group 2 - female UC who received only OL - 15 patients; Group 3 - male UC who received OL and the drug fluconazole (flunol) - 15 patients (control group).

Fluconazole (flunol) is an antifungal agent produced by Nobel Pharmsanoat (Uzbekistan). The drug belongs to the group of triazole derivatives. Mechanism of action is due to highly selective inhibition of synthesis of fungal enzymes dependent on cytochrome P450, which leads to decrease of cell synthesis of styrenes and disruption of cell wall permeability. When administered orally, it is well absorbed from the gastrointestinal tract (up to 90%). Plasma concentrations reach a maximum of 0.5-1.5 hours after ingestion, with a plasma elimination half-life of about 30 hours. Mostly excreted by the kidneys (about 80%). Dose of 150 mg once for 7 days.

Statistical processing of the obtained results was performed using traditional methods of variation statistics with the application package Excel in a personal computer based on the Pentium-IV processor. The principles of evidence-based medicine were used in the organization and conduct of the study.

Research results and their discussion. Considering the unambiguous place of various factors in the formation and development of UC in patients, we studied the detectability of different causes of morbidity in a comparative aspect in the regions studied.

We found that the main causes of UC formation in the examined patients were: endocrinopathies, hypovitaminosis, prolonged intake of cytostatics, prolonged intake of antibiotics and other reasons. Parameters of female patients permanently residing in Khorezm and Bukhara regions of Uzbekistan.

In Bukhara province, unlike the residents of Khorezm province, endocrinopathies in women were detected significantly more ($69.3 \pm 7.4\%$ vs. $54.8 \pm 7.7\%$). No differences were found for other reasons of the nosological unit under study.

In terms of the main causes of UC, intersex differences were revealed. While in women the leading causes were endocrinopathies, in men the first place was such an indication as "long-term use of antibiotics. No significant differences in other causes of UC were observed ($P > 0.05$).

The next feature characterizing the course and prognosis of the pathological condition is the duration of the disease. It is known that the success of treatment depends on this parameter; the sooner patients apply for specialized treatment, the sooner the possibility of the resolution of the disease symptoms.

In this regard, we studied the parameters of the timing of primary treatment of UC patients, depending on the place of residence during the examination and questioning of patients (Table 1)

Table 1
Comparative parameters of the time of primary treatment of patients with urogenital candidiasis depending on the place of residence

Days	Khorezm region, n=50		Bukhara region, n=46	
	abs	%	abs	%
4 Days	13	$26,0 \pm 6,2$	14	$30,4 \pm 6,8$
5 Days	14	$28,0 \pm 6,3$	14	$30,4 \pm 6,8$
6 Days	13	$26,0 \pm 6,2$	5	$10,9 \pm 4,6$
7 Days	4	$8,0 \pm 3,8$	6	$13,1 \pm 5,0$
8 Days and more	6	$12,0 \pm 4,6$	7	$15,2 \pm 5,3$

The data obtained show that sick residents of Bukhara Province applied mainly on the 4th day and 5th day ($30.4 \pm 6.8\%$ each) of the disease. The same indicators for Khorezm region were $26.0 \pm 6.2\%$ and $28.0 \pm 6.3\%$, respectively, indicating no statistically significant difference between the indicators ($P > 0.05$). There were no inter-gender differences in the described feature.

Thus, according to the indicators of the main causes of UC we found intersex differences in endocrinopathies and long-term use of antibiotics, but there were no significant differences by place of residence. There were also no differences by place of residence in the primary treatment of patients for specialized medical care.

The next stage of our research was the study of detection rates of the main clinical symptoms in this contingent. It was found that there was virtually no difference in these parameters by place of residence.

There were intersex differences in the detection of clinical symptoms in patients. Six main clinical symptoms were detected in female UC patients (Table 2)

Table 2
Rates of detection of major clinical symptoms in women with urogenital candidiasis, n=81

Symptoms	abs	%
Burning and itching that increases in the evening, in case of hypothermia, in case of untimely hygiene, before or after menstruation	80	98,8±1,1
Reddening and swelling of the mucous membranes of the genitals	79	97,5±1,7
Abundant or scanty white discharge of curd-like consistency	77	95,1±2,4
Sour odor from vaginal discharge	77	95,1±2,4
Pain and burning when urinating	75	92,6±2,9
Discomfort during sexual intercourse	61	75,3±4,8

The results show that the most frequently revealed clinical symptoms in female patients were burning and itching, which intensified in the evening, during hypothermia, untimely hygiene, before or after menstruation (98.8±1.1%, n=80), redness and swelling of the genital mucosa (97.5±1.7%, n=79). The following clinical symptoms followed: copious white discharge of curd-like consistency (95.1±2.4%, n=77), presence of an acidic odor from vaginal discharge (95.1±2.4%, n=77), pain and burning during urination (92.6±2.9%, n=75), and discomfort during sexual intercourse (75.3±4.8%, n=61). Male patients were found to have disease-specific clinical symptoms (Table 3).

Table 3
Parameters of detection of the main clinical symptoms in men with urogenital candidiasis, n=15

Symptoms	abs	%
Redness and itching in the area of the penis head	14	93,3±6,5
Soreness in the area of the penis head	13	86,7±8,8
White, curd-like buildup on the penis head	12	80,0±10,3
Pain when urinating	12	80,0±10,3
Pain and discomfort during sexual intercourse	11	73,3±11,4
Swelling of the penis head	10	66,7±12,2

In male patients, redness and itching in the area of the penile head were detected most frequently (93.3±6.5%, n=14). The next most frequently identified symptoms were the following: Pain in the penile head area (86.7±8.8%, n=13), white, curd-like plaque on the penile head (80.0±10.3%, n=12); pain during urination (80.0±10.3%, n=12); pain and discomfort during sexual contact (73.3±11.4%, n=11) penile head swelling (66.7±12.2%, n=10).

Thus, it was found that the main clinical symptoms of UC in women were burning and itching of genitals, redness, swelling of mucous membranes, copious or scanty white discharge of curd-like consistency with sour odor, pain during urination and discomfort during sexual intercourse. Men had similar symptoms - redness, itching, soreness, swelling and white curd-like plaque in the penile head area, pain during urination and intercourse. Attracting attention is the fact that the intensity of detection of clinical symptoms of UC was significantly higher in women than in men.

The next stage was to study the clinical and mycological effectiveness of treatment methods in UC patients in a comparative aspect.

In Group 1 patients, the parameters of clinical symptom relief were reliable (P<0.001), the reduction was up to 1.5-3.0%, and some clinical manifestations, such as copious, white discharge of curd-like consistency, pain and burning when urinating, discomfort during sexual intercourse disappeared in all patients.

In patients of the 2nd group, although there was a significant decrease in the definition of clinical symptoms (P<0,001), but the intensity of the relief of symptoms were not as characteristic as in the 1st group of female patients (P<0,05). Thus, redness and swelling of the genital mucous membranes decreased from 93.9±6.2% (n=62) to 13.3±8.8% (n=2), burning and itching from 100.0% (n=15) to 13.3±8.8% (n=2), profuse white discharge of curd-like consistency from 86.7±8.8% (n=13) to 6.7±6.4% (n=1), sour odor from discharge from 86.7±8.8% (n=13) to 26.7±11.4% (n=4). In addition, the post-treatment isolation rate of

Candida spp. in Group 1 patients was 0%, while in Group 2 patients it was 13.3±8.8% (P<0.05), which proves the mycological efficacy of fluconazole (Group 1) along with its clinical effectiveness in female UC patients.

The patients in the control group (men, who were treated with fluconazole) had the same clinical and mycological efficacy of treatment (Table 4) as the women in the 1st group, but the intensity of clinical symptom definition was significantly decreased (P<0,05).

Table 4
Clinical symptom manifestation in men with urogenital candidiasis (group 1) before and after treatment

Symptoms	Men, % (n=15)	
	Before treatment	After treatment
Redness and itching in the area of the penis head	93,9±6,2	6,7±6,4*
Soreness in the area of the penis head	86,7±8,8	6,7±6,4*
Swelling of the penis head	66,7±12,2	0
White curd on the glans of the penis	80,0±10,3	0
Pain when urinating	80,0±10,3	13,3±8,8*
Pain during sexual intercourse	73,3±11,4	6,7±6,4*
The incidence of Candida spp	100,0	13,3±8,8*

Note: * - sign of reliability before and after UC treatment.

This fact indicates that fluconazole included in the OC course has the most effective effect on female patients than on male ones, regardless of the place of residence. In addition, it should be emphasized that full mycological efficacy is not achieved, as Candida spp continued to be excreted in Group 2 patients (13.3%) after the course of treatment.

Thus, there was a significant decrease in the detection of clinical symptoms of UC in both comparison groups in women and in the control group, but in the group of female patients whose OI course included fluconazole, the relief of symptoms was more intense than in the comparison groups. Similar results were obtained with regard to the isolation rate of Candida spp. from biological material obtained from these patients. These facts indicate high clinical and mycological efficacy of flucanazole application. In addition, it was found that the clinical and mycological efficacy of this drug is significantly greater in women than in men, regardless of their place of residence.

Conclusions.

1. The main causes of onset and development of UC were endocrinopathies, long-term intake of antibiotics and cytostatics, hypovitaminosis, with the first 2 causes being the most frequent. There were some intersex differences in endocrinopathies and prolonged antibiotic intake, but no differences were found by place of residence of the patients.

2. It has been found that the main specific clinical symptoms of UC are more often detected in women than in men, regardless of age and place of residence.

3. There was a significant decrease in the detection of clinical symptoms of UC in the group of female patients, in which fluconazole was included in the OL course. In this group of patients, the relief of symptoms was more intensive than in the compared groups. Similar results were obtained for Candida spp.

4. High clinical and mycological efficacy of flucanazole was revealed. The clinical and mycological efficacy of this drug was significantly higher in women than in men, regardless of their place of residence.

List of references

1. Abidova Z.M., Baibekov I.M. Morphological features of the culture of fungi and skin in mycoses of the feet in the arid region // News of dermatovenerology and reproductive health. - Tashkent, 2005. - №3-4. - C.16-19.
2. Arifov S.S. Clinical dermatology and venereology // Textbook for medical universities. - Tashkent, 2013. - 386 c.

3. Artemova E.V., Bazhenov L.G. Identification of Candida fungi isolated from gastric juice // Medical Journal of Uzbekistan. - Tashkent, 2004. - №5-6. - C.71-72.
4. Elinov N.P. Medical mycology to XXI century - at the beginning of the third millennium // Problems of medical mycology - 2000. - T.2. - №4. - C.6-12.
5. Kisin V.I., Stepanova J.V., Mirzabekova MA, Kurchavov VA Clinical features of primary and recurrent urogenital candidiasis in women and the effectiveness of forcan depending on the species composition of Candida // Bulletin of Dermatology and Venerology. - Moscow, 2002. - №2. - C.61-63.
6. Nuraliev N.A., Iskhakova HI, Allaberganova Z.S., Bektimirov A.M-T. Biological properties of yeast-like fungi of the genus Candida and their bacteriological diagnosis // Guidelines. - Urgench, 2006. - 15 c.
7. Nurmetov F.E., Nuraliev N.A. Urogenital candidozlarning aʼoli orasida zhinsga va yosh guruxlariga boʻgʻlik xolda tarkalganligining uziga xos xususiyatlari // Infection, immunity and pharmacology. - Toshkent, 2011. - №1-2. - 54-58 6.
8. Rebrova R.N. Fungi of the genus Candida in diseases of non-fungal etiology. Moscow, Medicine, 1989. - 128 c.
9. Rex J.H., Walsh T.J., Sobel J.D. Practice guidelines for the treatment of candidiasis // Clin. Infect. Dis. - 2000. - N30. - P.662-678.
10. Tonoco K., Tsujino T., Fujioka Y. Candida parapsilosus endocarditis that emerged 2 years after abdominal surgery // Heart Vessels. - 2004. - N19 (3). - P.149-152.