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Effect of Probiotic in treatment of recurrent vulvovaginal candidiasis

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A B S T R A C T

Recurrent vulvovaginal candidiasis infection is considered as the incidence of at least 3 or 4 independent vulvovaginal candidiasis infection with specific clinical symptoms and laboratory confirmation in a year that doesn't have to do with antibiotic therapy. Some of these studies have shown that probiotic lactobacilli are highly effective in the treatment of candidiasis vulvovaginal. The aim of this study was to evaluate the effect of probiotic therapy in patients with candidiasis vaginitis compared with the standard treatment. In a double-blind randomized clinical trial which was performed on women with recurrent vaginitis candidiasis in Department of Obstetrics and Gynecology of Qazvin University of Medical Sciences and Department of infectious diseases of Tabriz University of medical sciences, recurrent vaginitis candidiasis infection status (resistant to treatment and relapse more than 3 times) and the responses to therapy in the patients were evaluated. There existed significant differences in the case and control groups before treatment in matters of symptoms. These symptoms included itching (P=0.359), vulvovaginal burning (P=0.414), disuria (P=0.494), dyspareunia (P=0.499), abnormal vaginal discharges (P=0.785), as well as deep pelvic pain (P=0.488). Patients in the case group were significantly lower than control group in the case of some symptoms after treatment such as frequency and the intensity of the itching (P=0.003), disuria (P=0.046), dyspareunia (P=0.006), abnormal vaginal discharges (P=0.015) and deep pelvic pain (P=0.031), while frequency of vulvovaginal burning after treatment had no important difference between two groups (P=0.061).At the end of the study, 3 patients from case group and 11 patients of control group had shown no responses to the treatment and their disease intensified. The intensifying rate and lack of response to treatment in patients of case group (under the supplemental treatment with the probiotic) were significantly lower than patients in control group (P = 0.019). The results of the present study showed that a combined treatment using probiotic materials in addition to the use of routine treatments is effective for patients with recurrent recurrent vulvovaginal candidiasis. This combines strategy leads to increased response of patients to treatment and dramatically reduction of frequency and severity of symptoms in patients, so as to the frequency and severity of these symptoms was lower in case compared to the control group after the treatment.

Introduction

Recurrent vulvovaginal candidiasis infection is considered as the incidence of at least 3 or 4 independent vulvovaginal candidiasis infection with specific clinical symptoms and laboratory confirmation (positive smear or culture) in a year that doesn't have to do with antibiotic therapy (1-6).

The highest prevalence of this disease is in women in the ages of 35-25 years. The prevalence of this infection has been reported in different communities (7).

There is no doubt that diabetes mellitus with bad control is a causes of vulvovaginal candidiasis infection (8-9). The possible relationship between recurrent candidiasis vaginal infection and glucose uptake has been the subject of a suspicious for years (10-13).

Study of Denders et al. on 60 patients and 30 controls confirmed sugar metabolism disorders in people with recurrent candidiasis vaginal infection.

Yang et al. showed that the prevalence of vulvovaginal candidiasis infection were considerably higher in women with GDM and GIGT (15.3% and 17.4% respectively) compared to the control group (7.2%) (14).
Excessive growth of Candida might be as a result of inhibition of natural vaginal flora bacteria, reducing local cellular immunity, changes in metabolic and nutritional environment and vagina mechanisms (15).

Numerous factors cause increase of infections including pregnancy, consumption of gestational tablets containing high estrogen (more than 40 µg), IUD, taking antibiotics, uncontrolled diabetes and immunosuppressive drugs, AIDS, wearing tight underwear, uncircumcised men, use of diaphragm, repeated vaginal shower, unhealthy or abundant sexual relationships, chronic anemia and seasonal allergy (16-20).

Wang et al believe that there is no communication between economic and social conditions with vaginitis (21). Clotrimazole is regarded as the first treatment and in the event of failure to response, Fluconazol is used (22-23). This drug has uncommon and unsuitable side effects like other drugs such as mild digestive intolerance, headaches and skin rashes (24).

Probiotic are live microorganisms with positive health effects when they are consumed by the host (25). Lactobacillus is a natural resident of flora vagina having basic role in suppressing the potential pathogen. Lactobacillus which is prescribed to the genital path has important part as prophylaxis in improving and strengthening the defense of genital micro flora against bacterial infections (26).

There exist different kinds of probiotic and lactobacillus and bifidobacterium are two major groups of them (27-28). Some of these studies have shown that probiotic lactobacilli are highly effective in the treatment of candidiasis vulvovaginal (26, 29).

While, others do not endorse this report and the positive influences of probiotic in the treatment of candidiasis vulvovaginal is still controversial (30-31). The aim of this study was to evaluate the effect of probiotic therapy in patients with candidiasis vaginitis compared with the standard treatment.

Materials and methods

In a double-blind randomized clinical trial which was performed on women with recurrent vaginitis candidiasis in Department of Obstetrics and Gynecology of Qazvin University of Medical Sciences and Department of infectious diseases of Tabriz University of medical sciences, recurrent vaginitis candidiasis infection status (resistant to treatment and relapse more than 3 times) and the responses to therapy in the patients were evaluated.

In this study, all women with the symptoms of Candida vaginitis who had referred for treatment during the study were selected and entered the study. The sample size necessary to compare the two groups was calculated 82 persons with 95 percent confidence interval. Samples were determined founded on "target based sampling method» among qualified individuals and then were divided into two groups (case and control) of 41 people using Random allocation software.

Samples were investigated for examination and sampling based on inclusion criteria including having the age range of 15-45 years, being married, the existence of symptoms and Candida vaginitis symptoms and signs in interview and observation and confirmation via laboratory studies, being monogamy, non-pregnant, non-lactating, non-menopause, not using pills for pregnancy prevention, the lack of any known disease, not using antibiotics in the last two weeks, not using oral and vaginal medications related to vaginal infection treatment during the last two-weeks, the lack of any sensitivity to the drugs used, the lack of trichomoniasis vaginitis and also completing the consent form.

Researcher and patients were blind other than case study group (case and control). Necessary information was obtained from patients and was recorded including demographic information (age, weight and BMI), obstetrical information (gravidity and parity) and the status of disease (itching and vaginal secretions).

Qualified individuals went under lithotomy position and speculum was inserted into vagina without any lubricant impregnation. At first, cervix and vagina were assessed in terms of symptoms such as (viscosity and smell of secretions, erythema and redness of vulvovaginal, lesions of pustulopapuler and volvo etc.) and abnormal findings and recorded in the observations check list. Then samples of secretions were collected from upper part and the lateral wall of the vagina with the use of three sterile cotton swaps and were examined.

The Ph of the vagina was determined using the PH meter (Merck, Germany). Ph of secretions upper than 4.5 was indicative of mixed infection and samples were excluded.

Patients were entered the study after approval of a Candida vaginitis infection. Patients in both groups were treated with capsule Fluconazol 100 mg /BID for seven days and vaginal probiotic capsules was prescribed for patients in case group for two week after treatment.

In this study both groups treated with vaginal cream of Clotrimazole 1% to the extent of a plastic applicator for each night for a week. All the samples were given a health educational pamphlet including instructions of how to consume drug, drug side effects, health advices, lack of taking antibiotics and other vaginal medications.

Exclusion criteria in this study includes occurrence of pregnancy, lack of desire of the person to continue participation in the study, indication of using antibiotics for any cause during the study, the incidence of intolerance or allergic to any medications, failure to observe target tips in this study.

Both groups checked in matter of response to therapy (clinical symptoms, PH values,

microscopic assessment and culture of sabro-Dextrose-Agar medium) a week after completion of the course of treatment and the results were recorded.

Definitive diagnosis was carried out using KOH solution. Patients with more than 3 times of infection in a year were considered as current vaginitis.

Reoccurrence symptoms within 2 months after treatment with laboratory confirmation were considered as recurrence of the disease. Diabetic patients and patients with HIV were excluded from the study.

Result and Discussion

In this study, 82 patients with recurrent vulvovaginal candidiasis were selected and treated in two groups of case and control. The mean age of the patients was 27.09±4.43 and 28.21±7.11 years in the case and control group, respectively (P = 0.394). Demographic finding of patients in two groups were shown in table I.

There existed clinical symptoms and complaints of the patients at admission including itching in 93.9% of cases (40 patients in case group and 37 patients in control group), vulvovaginal burning in 79.2% of cases(34 patients in case group and 31 patients in control group), disuria in 37.8% of cases(17 patients in case group and 14 patients in control group), dyspareunia in 59.75% of cases(26 patients in case group and 23 patients in control group), abnormal vaginal discharges in 79.2% cases(32 patients in case group and 33 patients in control group) and deep pelvic pain in 64.6% of cases(28 patients in case group and 25 patients in control group).

Although, there existed clinical symptoms and complaints of the patients after treatment including itching in 59.75% of cases(18 patients in case group and 31 patients in control group), vulvovaginal burning in 14.6% of cases(3 patients in case group and 9 patients in control group), disuria in 18.3% of cases(4 patients in case group and 11 patients in control group), dyspareunia in 36.6% of cases(9 patients in case group and 21 patients in control group), abnormal discharges in 50% of cases(15 patients in case group and 26 patients in control group) and deep pelvic pain in 30% of cases(8 patients in case group and 17 patients in control group).

There existed significant differences in the case and control groups before treatment in matters of symptoms. These symptoms included itching (P=0.359), vulvovaginal burning (P=0.414), disuria (P=0.494), dyspareunia (P=0.499), abnormal vaginal discharges (P=0.785), as well as deep pelvic pain (P=0.488). Patients in the case group were significantly lower than control group in the case of some symptoms after treatment such as frequency and the intensity of the itching (P=0.003), disuria (P=0.046), dyspareunia (P=0.006), abnormal vaginal discharges (P=0.015) and deep pelvic pain (P=0.031), while frequency of vulvovaginal burning after treatment had no important difference between two groups (P=0.061). The severity and frequency of symptoms in patients of case group had been reduced after treatment; however these changes were not significant in the control group (table II).
At the end of the study, 3 patients from case group and 11 patients of control group had shown no responses to the treatment and their disease intensified.

The intensifying rate and lack of response to treatment in patients of case group (under the supplemental treatment with the probiotic) were significantly lower than patients in control group (P = 0.019).

Table.I Demographic finding of patients in two groups

	Group		Total	P
	Case	Control		
Age	27.10 ± 4.44	28.22 ± 7.11	27.66 ± 5.92	0.394
Weight	59.16 ± 14.01	61.17 ± 15.15	60.16 ± 14.54	0.534
BMI	21.81 ± 3.40	22.09 ± 3.80	21.95 ± 3.59	0.727
Parity	2.46 ± 1.12	2.12 ± .87	2.29 ± 1.01	0.127
Gravidity	3.72 ± 1.23	3.64 ± 1.12	3.68 ± 1.17	0.792

Table.II Evaluation of patient's symptoms between two groups

	Group					
	Case			Control		
	Before	After	P	Before	After	P
Itching	40	18	<0.001	37	31	0.058
Vulvovaginal Burning	34	3	<0.001	31	9	<0.001
Disuria	17	4	<0.001	14	11	0.083
Dyspareunia	26	9	<0.001	23	21	0.157
Abnormal Vaginal Discharges	32	15	<0.001	33	26	0.008
Deep Pelvic Pain	28	8	<0.001	25	17	0.005

Martinez et al. said that 55 people (100%) had complaints with vaginal secretion accompanied by at least one symptom of vaginal irritation, itching, dysuria and dysparoni in both groups of therapy with Fluconazol and probiotic, as well as Fluconazol and placebo, while after treatment, only 3 people (10.3%) in group of Fluconazol and probiotic therapy and 9 people (34.6%) in group of Fluconazol and placebo had complaints with vaginal secretion accompanied by at least one symptom of vaginal irritation, itching, disuria and dyspareunia (P=0.03) (29).

The results showed that both methods of therapy have been effective in resolving the symptoms of patients and have been the same.

In our study, the most common complaint of patients after the treatment was reported as itching (43.9%) and abnormal vaginal discharge (36.6%). Additionally, itching (75.6%) and abnormal vaginal discharge (63.4 %) were also the most common complaints of patients in the control group.

Ride et al. expressed that improvement of symptoms was seen in 12 persons (30%) treated with oral lactobacillus such as ramunosos and fermentom compared with the group treated with placebo which were 4 people (12%) which was indicative of potential effectiveness of ramunosos and fermentom (32).

Martinez et al. showed that after treatment only 2 people (6.9%) in group of therapy with Fluconazol and probiotic and 1 person (3.8%) in group of Fluconazol and placebo therapy have had PH > 4.5 (29).
Martinez et al. also suggested that 55 people (100%) in both groups had a positive culture

of candida before the treatment. After treatment, only 3 people (10.3) in group treated ith Fluconazol and probiotic and 10 people (38.5%) in group of therapy with Fluconazol and placebo had a positive culture of Candida (29).

Srees et al expressed that lactobacillus secreting large quantities of H2O2, inhibit the growth of albicans candida faster and stronger than other species (33).

As with the results of the above studies, the use of probiotic compounds along with other ordinary treatments improves symptoms and the success rate of treatment in the treatment of patients with recurrent vulvovaginal candidiasis.

Conclusion

The results of the present study showed that a combined treatment using probiotic materials in addition to the use of routine treatments is effective for patients with recurrent recurrent vulvovagin al candidiasis. This combines strategy leads to increased response of patients to treatment and dramatically reduction of frequency and severity of symptoms in patients, so as to the frequency and severity of these symptoms was lower in case compared to the control group after the treatment.

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