

VULVOVAGINAL CANDIDIASIS AS A COMPLICATION OF SEXUAL TRANSMITTED DISEASES IN WOMEN REFERRED TO GYNECOLOGY CLINIC IN SOUTHEAST OF IRAN

Adel Ebrahimzadeh *, Khadije Saryazdi

*PhD and associated professor, Department of Medical Parasitology and Mycology, Zahedan University of Medical Sciences, Zahedan, Iran and membership in Infectious Diseases and Tropical Medicine Research Center, Zahedan University of Medical Sciences, Zahedan, Iran

BS.c in Nursing, Department of Medical Parasitology and Mycology, Zahedan University of Medical Sciences, Zahedan, Iran

Abstract

Vulvovaginal candidiasis (VVC) or Candida vaginitis is a common fungal infection among adult women during reproductive ages and is the second most frequent infection of the female genital tract. This study was designed to determine clinical findings and the species generating Vulvovaginal candidiasis in women referred to gynecology clinic in Chabahar. In this study all of 400 vaginal samples were examined with the wet smear methods and cultured on Sabouraud dextrose agar (SDA) and (CMA). Germ tube test and sugar assimilation test (API) were carried out to differentiate the Candida species in Chabahar in 2014. The data analysis was done using the SPSS software version 18.0 and chi-square and T student tests. In this study the prevalence of Vulvovaginal candidiasis (VVC) was 45.8% and the Candida albicans with (80.87%) and Candida non-albicans with (19.13%) were reported as generated species of Vulvovaginal candidiasis respectively. However, there was no statistically significant correlation between the demographic factors, age at marriage and educational level with infection. But there was a statistically significant relationship between burning, itching, malodorous discharge, vaginal parity, pH of the vagina, cervix appearance, consistency and color discharge with infection. Considering the prevalence of non-albicans species is increasing due to inappropriate antifungal therapy and on the other hand, recurrent infections, is also rising. It is recommended, vaginal Candida culture method (with high sensitivity) should be performed routinely in medical laboratory and with the determination of species and drug susceptibilities, appropriate medication is prescribed.

Keywords:

Vulvovaginal candidiasis -
Candida species-
prevalence – Southeast,
Iran.

Introduction

Vaginitis is the most common clinical problem of women in the United States, so that it composed of 10 million annually. Vaginitis (1). Vulvovaginitis candidiasis are the second most common type of are candida (2). In 2002, women in the United States spent more than half a billion dollars for the treatment of candida vulvovaginitis (3). Unfortunately, the prevalence and spread of this disease increased by the day and the dangers caused by this disease seriously threaten women (4-5). The most important risk factors for the incidence of candidiasis are pregnancy, diabetes, medications that suppress the immune system and a broad-spectrum antibiotic (6-7). In addition, contraceptive pills, maternity, mental stress and public illness that are affected the body are also predisposing to fungal diseases (5). Candida species are a major cause of vulvovaginitis in women at puberty and pregnancy period and are considered as a major opportunistic pathogen in immunocompromised patients (6). vulvovaginitis candidiasis has been estimated to affect about 75% of women at least once in their lifetime. Around the 40-50% of these women experience recurrence of Candida Vulvovaginitis (7, 8). Fungal infections caused by Candida albicans have been in 85-90% of patients in other cases Candida Glabrata and Candida Tropicalis are responsible for the disease (9). Identification of Candida species from the beginning until now has always been the most important problem of

medical mycology laboratory (10). This study was conducted aimed to investigate the prevalence and also demographic factors, clinical findings, and determination of the species causing Candida Vaginitis.

Materials and Methods

This descriptive cross sectional study was conducted in 2013 – 2014. In this study, 400 patients referred to gynecology clinic of Chababar, after informed consent was obtained from patients, was given a complete explanation about the purpose of the project, the questions was posed from patients verbally. Then the form of patient information was provision and completed by obstetrician and midwifery doctor from qualified patients. Samples were taken by sterile swab from the vaginal mucousal discharge. A swab was transferred to sabouraud agar medium and next swab was used for smear preparation and transferred to the laboratory. Yeast strains isolated from patients was detected and identification by the cultures of them on corn meal agar and germ tube and results were documented on the form. In addition in order to pH identification paper acidimeter and forceps was used for sampling. Sampled was provided by the trained gynecologist – midwifery doctor. Results were recorded in the patient information form. The data were analyzed using SPSS software to analyze and describe the data and will perform standard deviation chi-square and t student test for calculated the frequency distribution, mean and standard deviation.

Results and Discussion

In the current study were examined 400 samples of vaginal, 183 cases (45.8%) were positive in terms of vaginal candidiasis culture and 217 cases (54.2%) were negative. Table 1 shows the frequency distribution of disease-producing species in the study area. Of 400 prepared wet smears, 94 wet smears (23.5%) were reported positive. Most cases were in the age group 11-20 years and include of 79 patients (43.2%). Table 2 shows the distribution of absolute and relative frequency according to the affected cases and age group.

Table 1 shows the frequency distribution in terms of disease-producing species in the studied region

Generating species	number	%
Candida albicans	148	80.87%
Candida non-albicans	35	19.13%
Total	183	100%

2- The distribution of absolute and relative frequency according to the affected cases and age group.

Frequency Age groups	Frequency in patients		Frequency in normal people		Total	
	Number	%	number	%	number	%
11-20	79	43.2%	65	30%	144	36%
21-30	73	39.9%	81	37.3%	154	38.5%
31-40	31	16.9%	55	25.3%	86	21.5%
41-50	0	0%	16	7.4	16	4%
Total	183	45.8%	217	54.3%	400	100%

Most cases of infection were in the illiterate group, 53% (97 cases) as well as housewives were 97.8% (179). 49.5% (198) of the subjects had used antifungal drugs, which 41% (75 cases) of them were positive for Candida culture. 50.5% (202 cases) did not use any anti-fungal medication, which 59% (108) of them were infected. 74% (296 cases) of the subjects did not use any contraceptive method, that 76% (139) of them were infected. 26% (104 cases) of the studied individuals were using contraceptive methods, 84.6% (88 cases) were using the contraceptive pill, of which 43.2% (38 cases) were affected, 7.7% (8 cases) were used ampules and of them 50% (4 cases) were affected, 7.7% (8 patients) had tubal ligation that were 1.1% (2 cases) and had the lowest risk of infection. 20.8% Of patients had no history of delivery. Among the studied subjects, 130 cases (71%) complained of Itching, 128 cases (69.9%) of burning, 39.9% (73 cases) dysuria 120 cases (65.6%) of abdominal pain.

Table 3: Distribution frequency in individuals who show signs listed.

Signs	Frequency in patients		statistical results
	number	%	
Itching	130	71%	P<0.001 X=32.97
Burning during intercourse	128	69.9%	P<0.001 X=31.43
Dysuria	73	39.9%	P=0.107 X=2.59
abdominal pain	120	65.6%	P<0.001 X=17.96

In this study, chi-square test showed no significant relationship between itching and burning during intercourse with vaginal candidiasis infection ($P < 0.001$). Also there was a significant association between pelvic pain with Vaginitis candida infection ($P < 0.001$). Using the chi-square test, was found a significant association between the number of vaginal deliveries and Vaginitis candida infection ($P = .038$). In the present study, the chi-square test showed a significant association between the appearance of cervix and vaginal candidiasis infection ($P = .034$). Also, there was a significant association between the consistency and color of discharge with the risk of vaginal candidiasis infection ($P < 0.001$). In this study, there were not significant relationship between the contraceptive methods and Vaginitis candida infection. It should be noted that the 26% (about 104 cases) of study subjects who used a contraceptive method, 84.6% (88 cases) were using contraceptive pills. In this study pH test was a research variable that had a significant correlation with the incidence of vaginal candidiasis ($P < 0.001$). Using t student test showed a significant relationship between age and incidence of vaginal candidiasis infection ($P = .014$). In this study, there was no significant correlation between age of marriage and education level with Vaginitis candida infection rate ($P < 0.001$). However there was no significant association between the occupation and with the Vaginitis candida infection.

In Dr. Emran *et al.*, study in 2011 in Tonkabon, the prevalence of vaginal candidiasis (47.6%) has been reported the generating species, 80% *Candida Albicans*, 6% *Candida Tropicalis*, 4% *Candida Glabrata*, 3%, *Candida Guilliermondii*, 3% *Candida steloid*, 2% *Candida Crosei*, 2% *Candida Parapesilosis* (11). In Habibi Poor *et al.* study in Hamadan in 2008-2009, 26% of the studied subjects had Vaginitis Candida that *Candida albicans* cause the 81.3% of this problem, and other less common species: *C. Glabrata* (11%), *C. tropicalis* (4.4%), *C. cruising* (2.2%) and the remaining 1.1% were infectious agent (12). In a study in women with Vaginitis candida in America in 2005, approximately 80% of isolates *Candida* in vaginal candidiasis, (14.3%) were *Candida Albicans*, (8.5%) were *C.*

glabrata and (5.9%) were *C. tropicalis* and *parapsilosis* (14). A study was conducted on 1066 women by Behtz and colleagues in Madagascar in 2001 and were stated the prevalence of Candidiasis in general population of women (28.5%). Given that the prevalence of candidiasis is affected by health and socio-cultural factors. In various regions, prevalence and identity of regenerating species is reported different.

In this study, prevalence of *Candida Vaginitis* was 45.8%, also the percentage and identity of regenerating species were reported: *Candida albicans* (80.87%) and *Candida non-albicans* (19.13%). In Dr. Emran and colleagues study (2011) of 100 positive cases, 30 cases had a history of recurrent infection despite of antifungal drugs usage. Despite in previous studies the frequency of recurrent infection had been reported 20-25% (15, 16, 17, 18) in this study the frequency of recurrent infection was reported higher, so that 41% of individuals were using antifungal drugs. In this study and other studies, the prevalence of non-albicans species is increasing, that is due to antifungal treatment. To kill other species such as *C. tropicalis* are needed more dose of azole or phelositosin (19, 20, 21) which is Compatible with the results of this study. Of course structure of *Candida* cells (*Clamydia* spore thick-wall) make *Candida albicans* resistant to the effects of the drug (21). That's why an accurate diagnosis and prescribe the suitable medication are worthwhile.

Conclusion

Given the prevalence of non-albicans species is increasing due to inappropriate antifungal therapy, on the other hand recurrent infections are on the rise, is recommended *Candida* vaginal culture (due to high sensitivity) to be used as a routine procedure in detection centers and with the determination of species and drug susceptibility determination, appropriate medication is prescribed.

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