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Vulvovaginitis Candidiasis Recurrence During Pregnancy

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Abstract: Vulvovaginitis is the most common gynecologic condition seen by practitioners rendering primary care to women. Vulvovaginitis Candidiasis (VVC) is the most common type of vaginitis and this study aimed at specifying VVC recurrence during pregnancy. In this prospective study, 150 pregnant women suffering from vaginal excretion, morsus and itching were studied. Initially, the patients were treated using clotrimazole local cream (5 g) for 7 successive days. After initial treatment, the patients were freely visited once a month until delivery considering vaginitis symptoms and VVC recurrence was examined during pregnancy. Mean age of the understudy mothers was 27.26±3.76. Mean of recurrence number was 0.17±0.48 during the first trimester. Mean of recurrence number was 0.92±0.76 during the second trimester. Mean of recurrence number was 2.16±0.63 during the third trimester. Statistically significant difference was between recurrences during three trimesters of pregnancy ($p<0.001$). There is statistically significant difference between mean number of recurrences during three trimesters of pregnancy.

Key words: Vulvovaginitis, vulvovaginitis candidiasis, recurrence, pregnancy, inflammation

INTRODUCTION

Vaginitis is an inflammation of the vagina. It can result in discharge, itching and pain and is often associated with an irritation or infection of the vulva (Hanna, 1995; Kukner *et al*., 1995). It is of common causes of women's referring to clinics. Vulvovaginitis candidiasis (VVC) is the most common type of vaginitis and it is estimated that 75% of women suffer from candidiasis vulvovaginitis at least once in their life and 45% of women suffer from VVC infection for two or more times (Mylonas and Friese, 2007; Quan, 2010). *Candida vaginitis* is a result of *Candida albicans* in 85-90% of cases but other *Candida* species such as *Candida glabrata*, *Candida tropicalis* may also lead to appearing of vulvovaginitis (Chong *et al*., 2007). Due to decrease of immunity quality with cellular mediator, pregnancy may provide conditions to suffer from vulvovaginitis candidature. Although VVC has no proved effect on embryo during pregnancy; excretion, morsus, dyspareunia, itching and valve incitement lead to discomfort of the patient and should be treated. Corsello *et al*. (2003), Grigoriou *et al*. (2006) During pregnancy, acute infection is treated using local ointment for 7 days. Sufficient studies have been conducted considering prevalence of relapsing VVC in non pregnant women. Nancy Bohannon introduced pregnancy, diabetes, consumption drugs with high estrogen, obesity and addiction as risk factors leading to suffering from recurrent VVC (Marrazzo, 2002). Due to high prevalence of vaginal candidiasis during pregnancy, sufficient researches have not been done regarding recurrence of the disease during this period such that there is no information considering VVC or vagina recurrent candidiasis during pregnancy. In the present, VVC recurrence during pregnancy was assessed to evaluate the need to supporting treatment during pregnancy.

MATERIALS AND METHODS

In this prospective study, 150 pregnant women suffering from vaginal excretion, morsus and itching were primarily selected until completion of the sample. They referred to specialized clinics of Tabriz University of Medical Sciences and the gynecologist diagnosed VVC in their clinical examination. Research method including registering examination data, testing vaginal excretion and free periodic examinations were described to the patients. After accepting the conditions and submitting letter of satisfaction, they entered the study. To have a definite diagnose, all selected patients were referred to Alzahra hospital of Tabriz to test direct vision with KOH. In case

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of obtaining positive results, they entered the study. If there was strong clinical doubt but direct vision of the excretions was negative, the samples were sent to cultivation test of vaginal excretions and the positive cases entered the study. Other inclusion criteria of the study were: not suffering from diabetes, suffering from chronic dermatosis in perineum and non-rupture of the hydatid. Exclusion criteria were: Non-consumption of drugs during initial infection, sensitivity to steroid, manifestation of other lower genital infections such as herpes and dissatisfaction of the patient to continue the research. At first, the patients were treated using clotrimazole cream for 7 successive days. After initial treatment, the patients were freely visited once a month until delivery considering vaginitis symptoms (pregnancy control visits were not regarded as the related ones). Also, they were advised to refer to the physician early in case of appearing the symptoms. Reappearing of *Candida* excretion in vagina or vulva and laboratory confirmation was regarded as recurrence. Considering the mentioned symptoms, numbers of the patients' recurrence were registered until delivery. The registered cases included patient's personal particulars, records of background disease, records of drug consumption and also medical features such as laboratory diagnosis and registered recurrence cases.

Statistical analysis: The results of the study were statistically analyzed using SPSS, version 16. To account for statistical differences in two groups, a chi-square test or Fisher's exact test was used, as appropriate. A p-value of <0.05 was considered significant.

RESULTS

Mean age of the understudy patients was 27.26±3.76. The youngest mother was 18 and the oldest one was 35 years. Most of the women in this study were 28 years old and more than 50% of the understudy women were 28 years old or below 28 years. Correlation exhibited that there is no statistically significant relationship between mothers' age and recurrence rate during first trimester of pregnancy (p = 0.792). The correlation test demonstrated that there is no statistically significant relationship between mothers' age and recurrence rate during second trimester of pregnancy (p = 0.611). The same trend also obtained in correlation from the third trimester of pregnancy (p = 0.272). Three (2%) patients had records of drug consumption (immunosuppressive) and 26 (17.3%) patients cases had records of antibiotic consumption. Statistically significant relationship between antibiotic consumption and recurrence during first and third trimester of pregnancy (p = 0.021) and (p = 0.043). The second trimester of pregnancy did not show any statistically significant relationship between antibiotic consumption and recurrence (p = 0.690) (Table 1). In this study, mean of recurrence number was 0.17±0.48 during the first trimester. The least number of recurrences was zero and the greatest one was 3 during the first trimester of pregnancy. Most of women did not experience recurrence during first trimester of pregnancy. Mean of recurrence number was 0.92±0.76 during the second trimester. The least number of recurrences was zero and the greatest one was 3 during the second trimester of pregnancy. Most of women experienced 1 recurrence during second trimester of pregnancy. Mean of recurrence number was 2.16±0.63 during the third trimester. The least number of recurrences was 1 and the greatest one was 4 during the third trimester of pregnancy. Most of women experienced 2 recurrences during third trimester of pregnancy. There is statistically significant difference between mean number of recurrences during three trimesters of pregnancy (p<0.001); it was different in all the three groups. Comparing other periods, more recurrences were observed during the third trimester (Table 2). Mean recurrence was 1.08±1.04 among pregnant women suffering from VVC during pregnancy. Each women experienced recurrence at least once. Most of them, i.e., 50%, experienced it more than once.

Table 1: Demographic characteristics of the study population

Characteristics	No.	%
Age	27.26±3.76	-
Previous pregnancy	1.81±0.75	-
Nephrology disorder	1.00	0.7
Cardiology disorder	1.00	0.7
Diabetes mellitus	0.00	0.0
Hypertension	1.00	12.0
Records of antibiotic consumption	26.00	17.3
Records of antibiotic consumption	3.00	2.0

Table 2: Relationship between recurrence rate and time of pregnancy

Mean recurrence rate	p-value
Time of pregnancy	<0.0001
First trimester	0.17±0.48
Second trimester	0.92±0.76
Third trimester	2.16±0.63

DISCUSSION

There have been conducted sufficient studies considering prevalence rate of recurrent VVC in nonpregnant women (Goode *et al*., 1994; Kukner *et al*., 1995) but, no research with the same subject has been done on rate or recurrent mean of VVC during pregnancy. Therefore, results of this study are not comparable with other studies. This is a prospective, comparative and analytical study comparing recurrent rate of VVC during

first, second and third trimester of pregnancy and studying total mean of VVC recurrent in this period. In this study, mean age of the understudy pregnant women was 27.26±3.76 and most of them were in the age group of 24-29 years. The correlation test results demonstrated that there is no statistically significant relationship considering mothers' age and recurrence rate during first trimester of pregnancy ($p = 0.792$). The same is true for the second and third trimesters ($p = 0.611$ and $p = 0.272$, respectively). In their study conducted on risk factors of suffering from recurrent VVC, Patel *et al.* (2004) stated that age less than 40 had a positive relationship with marked periods of VVC. Mean of previous pregnancy times was 1.81±0.75 in the understudy mothers. Most of them experienced two previous pregnancies. It seems that there is no positive relationship between previous pregnancy times and recurrent rate during present pregnancy. Diabetes, pregnancy and wide use of antibiotics as well as any reason result in decreasing cellular immunity system efficiency were regarded as the risk factors of suffering from recurrent VVC in all reference books and conducted researches (Reed, 1992; Sobel, 1985, 1989). As mentioned, consumption of antibiotics and every other factor leading to weakening of cellular immunity increase VVC recurrence (Lindeque and Van Niekerk, 1984; Merkus, 1990). In the present study, 2% of pregnant women had records of immunosuppressive and 17.3% of them had records of antibiotic consumption. According to the study, there is statistically significant relationship between records of antibiotic consumption and recurrence of the problem during the first and three trimester of the pregnancy. The results demonstrate that there is no statistically significant relationship between antibiotic consumption and recurrence during second trimester of pregnancy ($p = 0.690$). Most of the researchers state that 75% of women suffer from VVC at least once in their life, 45-50% of women suffer from it for two or more times and 5% suffer from recurrent VVC (Eschenbach, 1983; Lebherz and Ford, 1982). Any of the references did not refer to VVC recurrent rate or mean during pregnancy (Eliot *et al.*, 1979; Lebherz *et al.*, 1983). In the present study, mean recurrent was 0.17±0.48 during first trimester of pregnancy. Most of the understudy women did not experience recurrent during first trimester. In these women, mean of recurrent times was 0.92±0.76 during the second trimester. Most cases experienced recurrence once during the second trimester. Mean recurrent was 2.16±0.63 during the third trimester and most of them experienced recurrent twice during the third trimester of pregnancy.

CONCLUSION

There is no positive relationship between times of previous pregnancy and recurrent rate of vaginitis during present pregnancy. Statistically significant difference is between mean number of recurrences during three trimesters of pregnancy.

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