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The Relationship between Vulvovaginal Candidiasis and Some Predisposing Factors in Prevalence among Baghdad Women

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ABSTRACT

Background: Vaginal discharge and itching are characteristic of Candidiasis. It is related to significant patient pain. The occurrence is increased during gestation and may lead to difficulties such as abortion, premature delivery, chorioamnionitis, and so on. In Baghdad, this study was conducted to assess the prevalence of Vulvovaginal Candidiasis(VVC) among women.
Methods: The research included 195 women. These women have been taken with a high vaginal swab and exposed to grams and culture for the diagnosis of VVC.
Results: Amongst the 195 women surveyed, 106 were positive (57.3%) for VVC. This suggested mainly Candida albicans (50.6%), 127 of the consumers of oral contraceptives had 93 (73.2%) and 23 to 26 years of age (37.3%). Eighty percent of women with VVC had risk factors such as diabetes, preceding oral contraceptives, intrauterine implants, oral antibiotics and previous candidiasis incidents.
Conclusion: There is a clear correlation between use of contraception and the prevalence of Candida vaginal disease, the most commonly used species being C.albicans., and a screening procedure for the early detection and treatment of Candidiasis with appropriate medicines is suggested.

Keywords: Candidiasis, Candida spp., Risk factors, oral contraceptives.

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INTRODUCTION

Candidiasis is the world's most prevalent fungal disease affecting the genital tract of women [1]. Pruritis, thick, white vaginal fluid, swelling of the vagina and dyspareunia are the major cause of bacterial vaginitis [2]. Vaginal Candidiasis can be graded as both unsophisticated and complex based on clinical involvement and antifungal response. Candidiasis, caused mainly by *C. albicans*, has slight to modest signs. Candida species is often caused by complicated vaginal candidiasis, though, besides normal among pregnant women. About 75% of adult women are exposed to at smallest one Vulvovaginal Candidiasis (VVC), which involves an additional 40 % to 50% and a further 5% of recurring (RVVC) episodes. Studies suggest, oppositely, that 20 to 25 % of stable and totally asymptomatic women have a positive culture of vaginal emission for *Candida albicans* [3].

The disease is common among reproductive women. Women in the childbirth community have at least one vaginal candidiasis episode in their lives [4]. Vaginal Candidiasis can develop on several factors: diabetes mellitus, HIV infection, contraception, pregnancy and antibiotics of a wide spectrum [5]. Gravidity statistics and pregnancy stage lead to the production of vaginal Candidiasis [6]. Recurring vaginal Candidiasis is very common and can have significant health effects, such as chronic vulvovaginal pain syndrome [7-8]. The fundamental explanation for the rise in *Candida non-albicans* as a effect of extensive use of azole medicines such as *C.glabrata, C.krusei* and *C.parapsilosisis*[9].

Other factors that can improve the incidence of infection are the use of showers, perfumed grooming sprays and topical antimicrobials and the use of close, poorly ventilated clothes and underwear [10]. Contraceptives are chemical agents used in methods of birth control, including oral contraceptive pills, contraceptive instruments for injection-Depo-Provera injections, jellies, creams, foam, vaginal tablets and cervical caps [11]. Oestrogen and progesterone-containing contraceptives increase the Glycogen that has been transformed by lactobacilli into lactic acid in the vagina. Overcrowding of *Candida* species is thus attributed to reduced pH. Jokes, burning and vaginal inflammation are the maximum common signs of yeast contagion in women. The vaginal release is not always accessible and can be limited. This research has been carried out to illustrate the importance of these factors and their contribution to the prevalence of Candidiasis in women with vaginitis.

MATERIALS AND METHODS

The Research was shown in the obstetrics division Gynecology and Microbiology Department at Yarmouk Teaching Hospital, Baghdad. 195 women from Women aged between 20 - 55 years, regardless of attractiveness, and a third of pregnancy, these were involved in the study by the appropriate specimen—approval of the University's Legal Committee. A full clinical review trailed complete clinical history after informed consent is obtained from all subjects. Demography detail, parity, third pregnancy, presence or absence of associated vaginal secretions Scratching, the appearance or nonappearance of diabetes, the presence of long-term risk factors such as immuno-suppressive medication or antibiotics, etc., Treatment history and related details on vulva were obtained. Signs of inflammation and secretions were examined in the vagina. There was a sterile speculum test and a high vaginal swab. Taken with a clean stick of a swab [12].

The swab stick was replaced immediately and labelled correctly. The swabs were contaminated with grams, and the KOH wet mount was microscopically inspected to diagnose candida. On Sabouraud Dextrose Agar, Swabs were cultivated and incubated for 48 to 72 h in 37 degrees and inspected for creamy suave white yeast colonies. *Candida* species were detected in some cases by

Vitek method. The results were analyzed by using Chi-Square and the T-t test to find out if there were significant variances between the groups of tests that were performed under significant levels of 0.05, 0.01, 0.001. .[13-15].

RESULTS

Of the 195 women of contraceptive consumers, *Candida* species were isolated in 83 (65.3 %) isolate, in comparison to 32(39.7 %) from 103 non-contraceptive customers. There was a statistically highly significant relationship (P<0.001) between the contraceptive and no contraceptive users. table 1.

Of the 106 *Candida* isolates, *C. albicans* was the most prevalent specimens with 42 (50.6 %) isolates. The least prevalence types were *C. parapsilosis* and *C. krusei* with 6 (7.2 %) and 4 (4.8 %) isolates, respectively. table (2)

Table 1: Rate of *Candida* isolation from 195 specimens.

Name of *Candida* Species	Candida spp. from Contraceptive users (n=83)		Candida spp. from Non-contraceptive users (n=23)		Total (n= 106)
	No	%	No	%	
Candida albicans	42	50.6	10	43.5	52 (49.05 %)
Candida tropicalis	08	9.6	04	17.4	12 (11.3 %)
Candida krusei	04	4.8	02	8.7	6 (5.7 %)
Candida parapsilosis	06	7.2	01	4.3	7 (6.6 %)

*p= 0.001

Table2: Different *Candida* species isolated from Patient group.

Patient group (n= 185)	Isolation of Candida spp.		Negative Cultures		Total
	No	%	No	%	
Contraceptive users (n=127)	83	65.3	44	34.7	127 (100%)
Non-Contraceptive users (n=58)	23	39.7	35	60.3	58 (100%)
Total (n=185)	106 (57.3)		79 (42.7)		185 (100%)
Candida glabrata	23	27.7	06	26	29 (27.4 %)
Total	83 (100%)		23 (100%)		106 (100 %)

*p= 0.01

The highest frequency of VVC was observed in 93 (73.2%) out of 127 patients in OCP users. This was followed by an IUCD table of 34(26.8%) (3). There was a significant clear association (P = 0.01) between the type of contraception used and the frequency of *Candida* VVC.

Candidiasis was the highest prevalence between specimens in the age group of 23 to 26 (37.3 %) as compared to 47.8 % in the similar age group between controls which was statistically significant. Still, the Candidiasis was the least prevalence among specimens in the age group of > 35 (12.1 %), table (4),fig(1). As likened to 13.6 % in the same age group between controls, in Women with vaginal candidiasis Contraceptive users.

Table 3: Prevalence of Candida species among Contraceptives users.

Name of Contraceptives	No of Samples (n= 127)		No of infected (n= 45)	
	No	%	No	%
OCP	93	73.2	37	82.2
IUCD	34	26.8	08	17.8
Total	127 (100 %)		45 (100 %)	

Table 4: Age Distribution.

Age	Women with vaginal candidiasis Contraceptive users			
	N=83(positive)	%	N= 44(Negative)	%
23 -26	31	37.3	21	47.8
27 -30	23	27.7	13	29.6
31-35	19	22.9	4	9
> 35	10	12.1	6	13.6
Total	83 (100 %)		44 (100 %)	

P=0.05

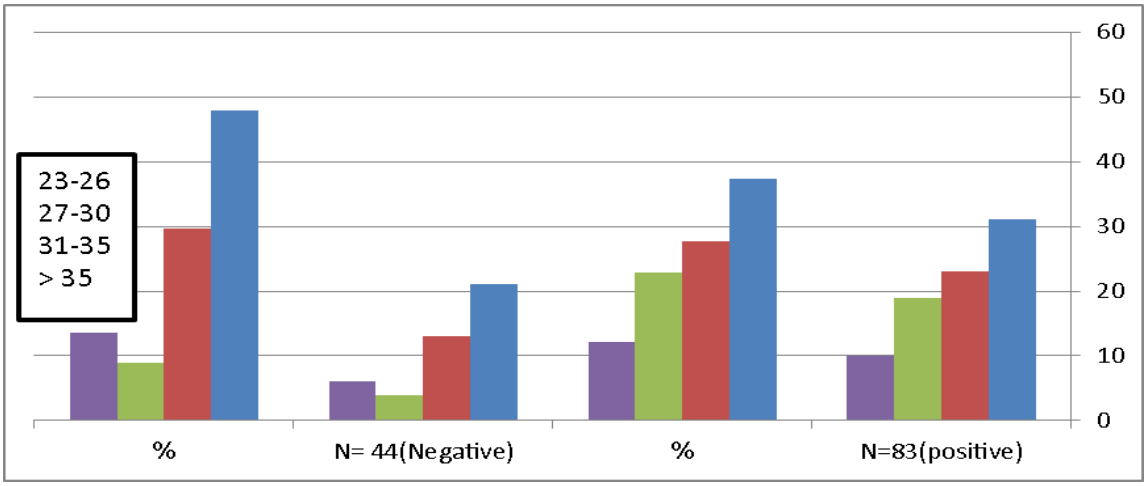

Figure1: **Percentage of Age Distribution**.

The highest commonness of VVC was found in women with diabetes and pregnant women, as it was 43 (26.4%) and 37 (22.7 %), respectively, out of 163 patients, Table (3). There was a significant relationship (P = 0.001) between the types of risk factors and the commonness of VVC, Table(5),fig (2).

Table 5: Risk Factors.

Risk Factors	No (163)	%	P-value
Diabetes	43	26.4	0.001
Pregnancy	37	22.7	
Previous Candidiasis	21	12.9	
Previous antibiotics	26	15.9	
Previous Intrauterine Devices	17	10.4	
No predisposing factor	19	11.7	
Total	163 (100%)		

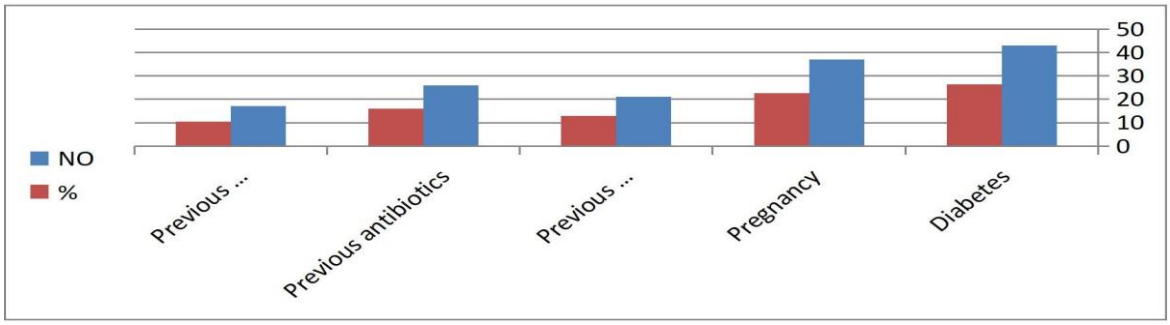

Figure2: Percentage of Risk Factors.

As for Vaginal discharge, despite the high percentage of women who suffer from them due to Candidiasis, which is (48.1%), and compared with women who suffer from them for other reasons (51.3 %) this increase was not significant, as well as for other symptoms at a (p= 0.001) Table6.

Table 6: Signs and indicators of vaginal Candidiasis.

Signs & Indicators	Women with Vulvovaginal Candidiasis		Women with other vaginal infections		P-value
	No(106)	%	78	%	
Asymptomatic	21	19.8	16	20.5	0.001
Vaginal discharge	51	48.1	40	51.3	
Pruritus	34	32.1	22	28.2	
Total	106 (100%)		78 (100%)		

DISCUSSION

From the whole of 127 females of contraception customers, Candida species were isolated in 83 (65.3%) specimens compared to 23 (39.7%) specimens from 58 non-contraception users. The same isolation trend was discovered by [16] who registered a 140 (56.7 %) prevalence of contraception users in Dhaka, cases of 103 non-contraceptive users opposed to 32(31.1 %).[17] *C. Albicans* (50%) displayed the highest incidence go after by *C.glabrata* (21.4%), *C.tropicalis* (14.3%), C.krusei (11.9%). *C.albicans* has been said to be a leading cause of yeast infections in women of infancy in the reproductive tract, and this is attributable to their virulent factors, including dimorphism and phénotypic switching. *C.albicans* also manufacture proteases and phosphatases to improve their adherence to human epithelia [9]. [9]. This result collaborating with those obtained by [18], they reported the prevalence of *C. Albicans*, *C. tropicalis* and *C. glabrata* were 78%, 14% and 2% from different clinical specimens, respectively. In Egypt, [19] indicated that the most predominant vaginal *Candida* species was *C.albicans* (78.3%) shadowed by *C. glabrata* (12%) than *C. tropicalis* (5.4%). Among women who use contraceptive drugs, a high occurrence of 69.4% was detected in oral pills compared with 12.2 and 2.1% in injectable and IUCD, respectively [20]. Local research by [16] recorded that 120 (85.7%) of 173 patients were found with the highest frequency of VVC among OCP users. This was followed by 17(12.2%) IUCD. [20] It was previously argued that estrogens and progesterone hormones might be found in contraceptives, which could increase Glycogen in the vagina, and thus may be subject to lactobacilli procedure. It is generally believed that lactobacilli play a function in converting Glycogen into lactic acid to decrease vagina pH. The reduced pH lessens the activity of the bacterial biota, favouring yeast growth, including *Candida* species[22].

[23] The low prevalence rate can be due to hormonal alteration induction for injectable contraceptive users. 2.1% of those after whom *Candida* types were cases accounted for IUCD users. This can be caused by local changes and secretions caused by external body vaginal pollution.

Candidiasis was just more widespread among 23 to 26-year-old women (37.3 %).[25] showed a 60% candidiasis was seen in pregnant females aged 26-35 years. They found that an elevated incidence of infection in this age group was attributable to the indiscriminate use of medicines and contraceptives. In our study, 80% of diabetes and females with VVC had risk aspects including pre-candidiasis, antibiotic usage, oral contraceptive pills and statistically meaningful intrinsic contraceptive system usage. This correlates to the observations that Candidiasis affects women with certain risk factors. As for the Vaginal discharge, which is a white lump with a thick consistency, odourless, its percentage is high in patients with Candidiasis, but it was an insignificant increase when compared with the secretions that are caused by other vaginal infections.

Vaginal secretions because of altered pH and sugar, vaginal Candidiasis is regular during pregnancy. Increased oestrogen levels through pregnancy create other Glycogen in the vagina and directly affect yeast cells, making it grow faster and easier to adhere to the vagina walls[26]. In particular, in the third quarter, the incidence of Candidiasis in pregnant women nearly doubled compared with non-pregnant females [27]. It is projected that active to 40 % of the world's gravid females have vaginal candida migration [28]. It also appears to be recurring during pregnancy due to the greater than before levels of estrogens and corticoids that reduce the appliances of defence counter to such resourceful infections. This correlates to other findings that predispose natural factors to Candidiasis. This high prevalence can be partially explained by poor personal hygiene and ignorance and analphabetism in our business.

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