CANDIDA ALBICANS INFECTION AMONG IRAQI WOMEN: SOME EPIDEMIOLOGICAL VARIABLES

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Abstract:
Background: Several studies were carried out on candidiasis among several groups.

Objective: This study was held to study the prevalence of candidiasis in women complaining of vaginal discharge.

Methods: A total of 100 female patients attending the gynecological clinic at Baghdad teaching hospital through the period from January 2004 to September 2004.

Results: Candidiasis was detected in 38% of the studied groups. It was in 50% of women complaining of vaginal discharge and 15% of diabetic women without vaginal discharge. *C. albicans* infection was significantly associated with age, menstrual status and marital status of women.

Conclusion: Candidiasis is a common infected agent among married women with vaginal discharge.

Key words: *C. albicans*, women, vaginal discharge, Iraq

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Introduction

Infection of the vulva and vagina is among the most common medical problem throughout the world. The most common type of vulvovaginitis is candidiasis[1]. Vaginal candidiasis caused *Candida albicans* is more than other species of candida[2]. The term candidiasis was used for commensally state, and could be used to describe pathogenic state[3].Others suggested that candidiasis should be used in the terminology of other mycotic disease[4]. Also, term thrush is commonly used referring to candidiasis of the vagina or mouth[5]. In Iraq, several studies were reporting on candidiasis among selected groups[6-9].

This study was carried out to study *C.albicans* infection among the Iraqi women attending gynaecological and obstetrics clinic for consultation of vaginal discharge.

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Materials and Methods

Vaginal swabs were obtained from 100 women by trained nurse. They were: 70 women complaining of vaginal discharge attending gynecological and obstetrics clinic in Baghdad teaching Hospital, and 30 married women without vaginal discharge (20 diabetic and 10 non diabetic women) as control group attending clinics for other diseases, through the period from January 2004 to September 2004. The groups were aged matched. Direct examination and culture were done. Cultures were made on Sabourauds dextrose agar (Difco) USA, incubated at 37°C and examined at 48-72 hours. Identification of isolated *C.albicans* was confirmed by Gram-stain, Sabourauds dextrose agar, Chlamadospore, germ tube production and API-yeast-identified system (Bio Merieux9) France, according to Elmer and Macke and McCartney[10,11].

Chi-square and Yates correction were used to examine the association between infection with *C.albicans* and studied variables. The value less than 0.05 was regarded as statistically significant.

Results:

Table 1 shows that 38% of the studied women having *C. albicans*. It was detected in 35 of 70 women complaining of

vaginal discharge (50%). It was detected in three (15%) out of 20 diabetic women without vaginal discharge and none (0.0%) of non-diabetic women without vaginal discharge. A significant statistically difference was demonstrated in the infection rate between the studied group ($p<0.05$) .

Table 1: Incidence of *C. albicans* among different groups of population

Groups Examined		Total No.	Candidiasis	
			No.	%
Women complaining of vaginal discharge		70	35	50
Control	**Diabetic women**	20	3	15
	Non diabetic women	10	0	0
Total		100	38	

Age distribution of *C.albicans* infection is shown in Figure1. Two peaks were noticed at extremes of the age of the studied women, 20-24 and 55-59 years. A predominate infection rate at the age 20 to 60 years.

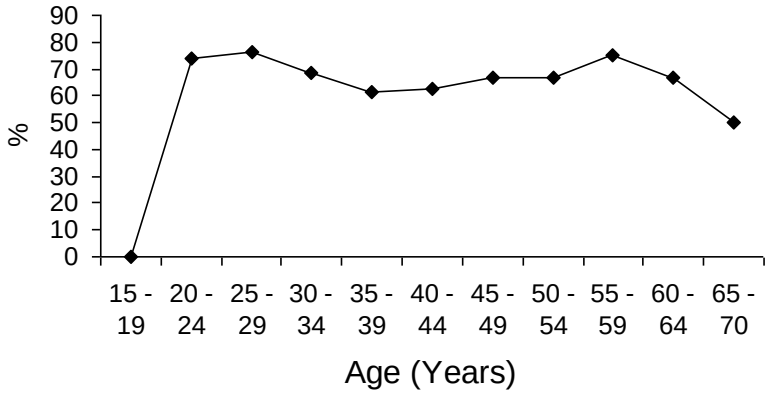

Figure 1: Age distribution of candidiasis among the studied women

It was found that 25 (83.3%) of pregnant women had *C .albicans* infection, 8 (17.7%) of non-pregnant married women (menstruating); 3 (20%) of lactating women and 2 (20%) of postmenopausal women had *C .albicans* infection. A significant statically association was observed between *C. albicans* infection rates with menstrual status of women ($P<0.05$). These findings are shown in table 2.

Table 2: Menstrual history in relation to infection with *C. albicans*

Menstrual history	Total No.	Candidiasis	
		No.	%
Non-pregnant (menstruating)	54	8	17.7
Pregnant	30	25	83.3
Lactating	15	3	20
Postmenopausal	10	2	20
Total	100	38	

Infection rates in married, divorced and widowed were 87.6%, 9.2% and 3.1%, respectively (Table 3). *C .albicans* infection rates were significantly association with social status of the studied women (P<0.05).

Table 3: Material status in relation to the infection with *C. albicans*

Material status	Total No.	Candidiasis	
		No.	%
Married	73	30	41.1
Divorced	16	6	37.5
Widowed	11	2	18.2
Total	100	38	100

Discussion

This study revealed that 38% of the studied women were infected with *C.albicans*. This result is higher than that reported by Al-Kaisi[6] and Al-Hadithi[7]. They reported that 24.58% and 27.3%, respectively. This difference may be attributed to sampling.

The finding that 50% of women complaining of vaginal discharge had *c. albicans* infection is similar to that reported in Tanzania (45%)[12]. Lower figures were reported in Europe (12.1%)[13] and Uganda (18.6%)[14].

Our finding that 15% of studied diabetic women had candidiasis is in agreement with that of Al-Omer[8]. Diabetes mellitus is one the factors associated with candidiasis[12].

This study shows higher rates of infection with *C.albicans* among young than older women. This is in agreement with the finding of Al-Omer[8]. Reproductive age correlated positively with candidiasis[12], which is considered as sexually transmitted infection[14,15].

The finding that 83.3% of pregnant women had candidiasis is consistent with that of Al-Hashime[9]. Pregnancy is positively correlated with candidiasis[12].

An infection rate *C. albicans* among lactating women was to that among postmenopausal women. This result is in agreement with that of Hiller and Lau[17]. Our finding that candidiasis was demonstrated in all the studied groups may be attributed to the fact that *C.albicans* is a common pathogenic in vaginitis[18].

The finding that a high infection rates among married women than the other groups may be attributed to role of husband in transmission of the infection as *C.albicans* infection is sexual transmitted microorganism[14,15]. Behaviour practices and sexual practices may affect the infection rate of candidiasis[19], which could not be explored in Iraq.

It can be concluded that candidiasis is a common infectious disease in the reproductive age and high rate reported among married women.

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