Original Research Article

Prevalence Rate of Vulvovaginal Candidiasis Among women Attending Abia State Teaching Hospital Aba, Nigeria

ABSTRACT

Background: Most women regard any secretion from the vagina as abnormal discharge and the first task for primary health care giver is to confirm whether it is physiological or pathological.

Aim: The aim of this study is to determine the prevalence rate of Candida infection among women, attending Abia State teaching hospital, Abayi Aba. A structured questionnaire was administered to obtain demographic data.

Methodology: One hundred high vaginal swab samples were collected from both symptomatic and asymptomatic non-pregnant women between ages 15-45 years old. These specimens were analyzed with standard microbiological techniques. The swabs were inoculated on sabouraud dextrose agar and incubated at 37 degree centigrade for 48hrs. Wet preparation was examined microscopically for presence of yeast cells. Gram staining was also done. Germ tube test was carried out to confirm *Candida albicans* species.\

Results: Of the 100 specimens analyzed, the overall prevalence of Candida species was 57% (n=57). There were 47 symptomatic participants and 53 asymptomatic participants in the study. Of the 47 symptomatic women, 36 had *Candida species* while 21 out of 53 asymptomatic women had *Candida species*. The participants were also grouped according to their socio-economic status and the result revealed that traders were most affected with prevalence rate of 35.1% while the housewives were least affected with prevalence rate of 14.0%.

Conclusion: This study recorded higher prevalence of vulvovaginal candidiasis among both symptomatic and asymptomatic non-pregnant women in Abia State teaching hospital. Regular check up and good hygiene practice are critical in order to forestall avoidable complications.

Keywords: Candida, Prevalence, Vulvovaginal, Germ tube.

Introduction

Candidiasis is a yeast infection of vagina, affecting most adult women in their life time [1].

Candidiasis in human has been always attributed to *Candida albicans*. However, reports have shown that other species of *Candida* may also contribute to the burden of candida infections in

humans [2]. Candida infection of genital tract is one of the commonest sexually transmitted diseases and most sole cause of vaginal discharge.

The genus Candida is a dimorphic fungus which becomes opportunistic pathogen in certain conditions such as malnutrition, diabetes, general debility, use of antibiotics, oral contraceptives, steroid drugs and immunosuppressive therapy [3]. The infection exhibits symptoms such as pruritus, irritation and soreness of vulva, swelling of vagina accompanied by discharges, dysuria and dysparenia [4].

Previous findings have generated data on the incidence of vaginal candidiasis. These suggested that about two-thirds of women experience at least an episode in their life time and close to 50% of women experienced multiple episodes [5]. However, most previous studies focused on immune compromised patients especially the pregnant women, diabetic patients, women on oral contraception with high estrogen content, HIV positive patients, and women who are on antibiotic therapy. Little or no studies have been done on otherwise healthy non-pregnant women [5]. Human vagina is characterized by dynamic relationship between Lactobacillus acidophilus and other endogenous flora, estrogen, glycogen, vaginal pH and metabolic by-products of these microbiomes. The by-product of Lactobacillus is hydrogen peroxide. This chemical is toxic to pathogens and maintains the healthy vaginal pH acidic. Changes in the vaginal environment by invading pathogens or biochemical alterations encourage increase in candida growth, enhance their adherence to vaginal epithelial cells and facilitate their multiplication [6]. Consequently, these changes transform asymptomatic colonization into symptomatic vaginal candidiasis which has the potential to cause enormous psychological distress and negatively impact patient's quality of life [5].

Although, vaginal candidiasis can be transmitted through sexual intercourse, it is not considered a sexually transmitted infection because it affects both celibate women and children. Candida is also a normal vagina flora in the healthy women [5, 7]. Diagnosis of vaginal candidiasis is based majorly on the patient's history because genital examination is cumbersome due to inability of conventional techniques to detect the organism to the species levels, thus management of infected patients is incapacitated [2]. Most women regard any secretion from the vagina as abnormal discharge and the first task for primary health care providers is to investigate whether it is pathological or physiological. There are few women who complain of vaginal discharge,

discomfort or odor without any objective findings [8]. Such women may be encouraged by neurotic fear of uncleanliness, anxiety about venereal diseases, guilt concerning sexual activities, whether or not sexual exposure has taken place. A number of vaginal infection present with a few or no symptoms and yet produce serious effect and can be transmitted to other individuals.

Candidiasis is responsible for 90% of the cases of infectious vaginitis. *Candida* is the fourth most common cause of nosocomial bloodstream infection in United States [9]. There are different species of *Candida* responsible for vaginal candidiasis. They include; *Candida albicans, Candida krusei, Candida glabrata, Candida tropicalis, Candida parapsilosis, Candida akabenensis, Candida guilliermondi* e t c. These species vary in their virulence attributes and their susceptibility to antifungal. Hence proper detection is necessary for adequate management therapy [2].

Materials and method

This study was done in Abia State Teaching Hospital, Abayi Aba. A structured questionnaire was administered to obtain demographic data. High vaginal swab samples were analyzed with standard microbiological techniques. The swabs were inoculated on sabouraud dextrose agar and incubated at 37 degree centigrade for 48hrs. Wet preparation was examined microscopically for presence of yeast cells. Gram staining was also done. Germ tube test was carried out to confirm *Candida albicans* species

RESULTS

This study was carried out among non-pregnant women between the ages of 15-45 years with and without clinical signs and symptoms of vulvovaginal disturbances attending Abia State teaching hospital Abayi Aba. High vaginal swab specimens were collected from each participant and analyze for the isolation and identification of *Candida species*.

Of the 100HVS samples examined, 57 had candida positive cultures and yeast cells identified from wet preparations, making the prevalence rate of vulvovaginal candidiasis among non-pregnant women attending Abia State teaching hospital 57% (Table 1).

Table 1: Prevalence rate of *Candida species* isolated

No.of sample	Positive for *Candida*(%)	Negative for *Candida* (%)
100	57 (57%)	43 (43%)

The isolates were characterized by the appearance of colonial morphology, reaction on the gram stain, germ tubes test and wet preparations. From the culture plates, the colonies were 2-4 micrometer in size, creamy white color, opaque, smooth features with rough surfaces and paste-like.

The positive cultures were observed mostly among women between ages of 21-30 years with record of 56% (n=32) and the least prevalence rate of 8.8% (n=5 each) was seen among women less than 20 years and those more than 40 years (Table 2).

Table 2: Distribution of Candida species among Age groups

Age (years)	Number positive	Percentage %
<20	5	8.8
21-30	32	56
31-40	15	26.3

>40	5	8.8

The prevalence of candidiasis in relation to their occupation is shown in table 3. Farmers recorded 29.8%, traders 35%, civil servants 21.1% and housewives 14%. The traders (business women) recorded the highest prevalence while housewives had the lowest prevalence.

Table 3: Distribution of Candida among socio-economic groups

Socio-economic status	Number of positive cases	Percentage %
Farmers	17	29.8
Traders	20	35
Civil servants	12	21
House wives	8	14

Table 4 shows prevalence of Candida in relation to clinical manifestations. Of the one hundred women examined, 47(47%) were symptomatic while 53(53%) were asymptomatic. Symptomatic women had 36% high prevalence rate of Candida while asymptomatic women showed 21% prevalence. However, this difference was not significant (P>0.05).

Table 4: Prevalence of vulvovaginal candidiasis in relation to clinical manifestations

Clinical manifestation	Number of Participants	Number of positive cases(%)
symptomatic	47	36 (36%)
asymptomatic	53	21 (21%)

Total	N=100	N=57 (57%)

Table 5 shows the rate of *Candida species* infection based on marital status. Total of 60 married women and 40 unmarried women were examined in the study. The married had lowest prevalence of 17.54% (n= 10) while unmarried had 39.46% (n=47) prevalence.

Marital status	Number of the participants	Number of positive cases%
Married	60	10 (17 54%)
Unmarried	40	47 (39.64)

DISCUSSION

Vaginal discharge is one of the most frequent gynecological problems seen in adult women. In this study, the overall prevalence of *Candida* was 57%. This result is higher than 29.7% reported by Shokohi *et al*., 2010 [10] in their study. It is also higher than the 33.6% reported by Adeoye and Akande [11] among women at Lagos State University Teaching Hospital and military hospital Lagos. It is comparatively lower than the 70% reported by Nwankwo *et al* [12] among females of reproductive age in Kano, Nigeria and 65.4% recorded by Donbraye-Emmanuel *et al* [13] in their study. Similar study was done in Abuja among non-pregnant women between same age ranges. The study recorded prevalence of 14% with highest rate observed among the age group 20-30 years and least seen among those less than 20 and greater than 40 [5]. The lower prevalence according to the researcher was attributed to factors such as high socio-economic

status of non-pregnant women examined, good hygiene practice, and sanitary condition of the environment and the nature of settlement (urban city). The present study also recorded highest prevalence among women between 20-30yrs. This observation was in agreement with the work done by other researchers [5, 14]. The high prevalence rate among the women of such age group may be due to high sexual activity, poor personal hygiene, the use of contraceptives and drug abuse among this age group. Advancement in age on the other hand, reduces the effect of eostrogen hormone in women, which could lead to lower infection rates as women advance in age. Most women above 45 years have reached menopause and are less or not sexually active. They also have a possible increase in vaginal immunity as they have reduced level of estrogen and corticoids, and are thus resistant to *Candida* infection [5]. In another study there was an even distribution of Candida species among all ages [15].

Participants with vulvovaginal discomfort had a higher percentage of Candida positive cultures (36%) than those with no vulvovaginal complaint (21%). This report is in concordance with the findings of Emeribe and his colleagues in 2015. It is reasonable to believe that young women with genital complaint visit hospital more often than those without such symptoms. This is in contrast to the study which showed that there was no association between Candida species and any of the socio-demographic characteristics [16]. According to a study, infections by *Candida* species were most frequent among younger patients, especially those ages under 20 years, in all decades [17]. A study by Murta *et al*. [18] reported that the frequency of Candida spp is a less common feature among ages between 40 years and 49 years and that the frequency of finding of Candida species in women above 60 years old may be influenced by hysterectomy.

Also in this study, highest prevalence rate was observed among unmarried non-pregnant women than the married with reported prevalence of 39.64% and 17.54% respectively. This result

disagrees with the finding of Okonkwo *et al*. [15] which recorded higher prevalence in married than unmarried women. Okonkwo like other researchers attributed the higher prevalence in married women to increased promiscuity either as a result of increased mobility of husbands (due to economic depression) or increased use of contraception by older women.

The observed association of a higher prevalence rate o Candida isolates with certain socio-demographic characteristics such as age, marital status, socio-economic status and sexual relationship lend credence to the fact that sexual transmission may be an important risk factor in vulvovaginal candidiasis [12]. Many researchers believe that nylon underwears and tight insulating clothing predispose to vaginal candidiasis by increasing the temperature and moisture of the perineum [12]. A study among African women wearing tight clothes reported a higher prevalence of Candida in vulvovaginal candidiasis than those wearing loose clothing; they also recorded 88.2% among regular users of tight clothing and 68.6% among occasional and non wearers of tight clothing. Although this study did not put into consideration this factor, it is important that this factor be taken into account in further study.

CONCLUSION

The outcome of this study indicated relatively high prevalence of *Candida species* in vulvovaginal candidiasis among non- pregnant women, especially those that are sexually active. It is worthwhile to consider laboratory diagnostic test results as adjunctive in combination with clinical symptoms in the definitive management of vulvovaginal candidiasis. Although the prevalence of this fungus was high in this study, it was similar to that found in other parts of Nigeria. This could be attributed to several factors. Based on the importance of the outcome of

this study, sex education and regular public enlightenment should be given to women on the clinical significance of Candida in vulvovaginal candidiasis and its complications.

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