

Full Length Research Paper

Epidemiology of *Candida vaginitis* in women of reproductive age in selected hospitals in Onitsha metropolis, Anambra state, Nigeria and its environs 2007-2012

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The main objective of this study was to determine the prevalence and distribution of *Candida vaginitis* in women of reproductive age in Onitsha metropolis and its environs. A retrospective (survey) study of 811 high vaginal swabs (HVS) recorded samples and results of patients with symptomatic *C. vaginitis* were done between 2007 and 2012. The study also attempted to ascertain if relationships existed between certain bio-social characteristics (e.g. age, marital status, physiologic state, location and occupation and the prevalence of *C. vaginitis*). The results showed that the different age groups recorded different prevalence rates of *C. vaginitis* with 22 to 26 years having the highest with 28.9% (234/811). Higher prevalence rate of 76.8% (623/811) was recorded for non pregnant women against 23.2% (188/811) recorded for pregnant women. Similarly, significant relationships were established between variables like marital status, location, occupation of the subjects and the prevalence of *C. vaginitis* ($P < 0.05$). The authors concluded by recommending compulsory high vaginal swab (HVS) screenings on all women of reproductive age. HVS culture test should be done to confirm or exclude involvement of *Candida albicans* for any observation of vaginal discharge on any woman before treatment. The authors went ahead to advise the health planners to use the findings of this study in their future plans.

Key words: Epidemiology, *Candida vaginitis*.

INTRODUCTION

Vast majority of cases of *Candida vaginitis* are caused by *Candida albicans*, with 5 to 20% produced by *Candida glabrata* or *Candida tropicalis* (Herbst et al., 1992). *C. vaginitis* is a common gynaecological finding among women worldwide (Anderson et al., 2004; Naglik et al., 2003). It is of more frequent occurrence among more sexually active women, that up to 75% of them have had the experience (Schroppei et al., 1994; Lisiak et al., 2003). The commonest organism implicated is *Candida*

albicans (Simoes et al., 1998; Ken, 1991; Ferrej, 2000; Da Rossa and Rimel, 2004). The predisposing factors include abuse of antibiotics, which kill the good and beneficial bacteria, allowing yeast overgrowth, hormonal fluctuations as in pregnancy and use of oral contraceptives among others (Geiger et al., 1995; Sobel et al., 1998). The commonest sign of infection is vaginal discharge which could be generally profuse, thick, odourless or malodorous, white profuse, yellow or green

Table 1. Age distribution of the people with vulvovaginal candidiasis.

| Age group | Frequency | Percentage |
|--------------|-----------|------------|
| 17-21 | 125 | 15.4 |
| 22-26 | 260 | 32.1 |
| 27-31 | 234 | 28.9 |
| 32-36 | 123 | 15.2 |
| 37 and above | 69 | 8.5 |
| Total | 811 | 100 |

Table 2. Physiologic state of people and the frequency of case.

| Physiologic state | Frequency of <i>C. albicans</i> | Percentage frequency of <i>C. albicans</i> |
|-------------------|---------------------------------|--|
| Pregnant | 188 | 23.2 |
| Not pregnant | 623 | 76.8 |
| Total cases | 811 | 100 |

purulent, and symptoms also include vulvar itching, dysuria and pruritus (Ching, 2002). Findings from 450 randomly selected sexually active women in Maiduguri Nigeria showed that 14.7% had *C. albicans* (Ojiyi et al., 2012). This makes it necessary to bridge the information gap, promote good health among the people of the area and for comparative purpose by conducting this study in Onitsha metropolis and its environs. In a rural community in the semi-arid zone, North- Eastern Nigeria, Nwosu and Djieyeb (2007) in a study among 311 pregnant women aged 16 to 37 years reported *C. albicans* in 56.3%. In Abakaliki South Eastern Nigeria, Adeoye et al. (2009) in a study of the prevalence of *Trichomonas vaginalis* and *C. albicans* among 200 antenatal women, reported 27.5% *C. albicans*. In Port Harcourt, Nigeria, prevalence of *C. albicans* was 38.3% among 129 patients aged 15 to 30 years with symptomatic vaginitis (Mbakwem et al., 2012). The aim of this study was to determine the level of involvement of *C. albicans* in cases of vaginitis in women of reproductive age attending the two hospitals in Onitsha and Ogidi, and examine the role of age, occupation, marital status and physiological state of the people. The authors discovered that work of this nature has been done in so many cities, both in Northern and Southern Nigeria as cited in studies, but none in the present area of study in Onitsha and its environs, Anambra state, South Eastern Nigeria. This makes it necessary to bridge the information gap, promote good health among the people of the area and for comparative purpose.

MATERIALS AND METHODS

Collection of samples

The study was carried out at the microbiology laboratories of well attended private women hospital in Onitsha and mission hospital in Ogidi, all in Anambra State. The study was retrospective in nature.

The data generated on high vaginal swabs (HVS) collected from women of reproductive age (17 years and above) that attended the hospitals from 2007 to 2012 were used. Altogether, 811 patient's data were reviewed from their laboratory results records. Additional information was obtained from the patients' hospitals records on the symptoms and other clinical details. This enables us to exclude women on their monthly period and those receiving vaginal related fungal treatment when they visited the hospitals, as these would likely affect the laboratory results. All others within the age bracket needed for the work were reviewed.

Statistical analyses

The numbers of cases selected and reviewed were noted. *C. vaginitis* positives and *C. vaginitis* negatives were also noted. The distribution of these as regards age, marital status, physiologic state (pregnant or non-pregnant), location (rural or urban) and occupation of the patients were presented in frequency tables and chi-square was used to analyze the results.

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RESULTS

Of a total of 811 patients reviewed, people within the age of 22 to 26 years had the highest prevalence of *C. albicans*, followed by 27 to 31 years. The differences in prevalence were statistically significant at $P < 0.05$ (Table 1).

Total women of 188 pregnant women reviewed recorded 23.2% prevalence of *C. albicans*, against 76.8% obtained from 623 non-pregnant women. The difference was statistically significant at $P < 0.05$ (Table 2).

The review of 347 married women from 811 total cases recorded 42.8% prevalence of *C. albicans*, while 464 non-married people had 57.2%. The difference between 2 categories was statistically significant at $P < 0.05$ (Table 3). As it concerned the location of the people, from 273 urban dwellers reviewed produced 33.7%, while from 538 rural dwellers, 66.3% prevalence of *C. albicans* was obtained.

Table 3. Marital status of people and frequency of *Candida albicans*.

| Marital status | Frequency of <i>C. albicans</i> | Percentage frequency of <i>C. albicans</i> |
|----------------|---------------------------------|--|
| Married | 347 | 42.8 |
| Not married | 464 | 57.2 |
| Total cases | 811 | 100 |

Table 4. Location of people and frequency of *C. albicans* cases.

| Locations | Frequency of <i>C. albicans</i> | Percentage frequency of <i>C. albicans</i> |
|----------------|---------------------------------|--|
| Urban dwellers | 273 | 33.7 |
| Rural dwellers | 538 | 66.3 |
| Total cases | 811 | 100 |

Table 5. Occupation of people and frequency of *C. albicans* cases.

| Occupation | Frequency of <i>C. albicans</i> | Percentage frequency of <i>C. albicans</i> |
|----------------|---------------------------------|--|
| Civil servants | 263 | 32.4 |
| House wives | 124 | 15.3 |
| Traders | 264 | 32.6 |
| Students | 160 | 19.7 |
| Total cases | 811 | 100 |

The difference was statistically significant at $P < 0.05$ (Table 4). Among occupational groups, traders had the highest occurrence of *C. albicans* (32.6%), while full time house wives had the lowest (15.3%) as shown in Table 5. The differences between different occupational groups were statistically significant ($P < 0.05$).

DISCUSSION

The results revealed that the highest prevalence of *C. vaginitis* (32.1%, caused by *C. albicans*) was observed in 22 to 26 years age group. This is a sexually active group and could be as a result of that. Okungbowa et al., (2003) in a study of age distribution of *Candida* infection amongst pregnant women in Benin city had similar report. The result identified three age groups with high occurrence of *Candida* infection: 17 to 23 (51.7%), 24 to 30 (41.5%), and 31 to 37 (36.4%) years. Though they worked with pregnant patients, but age group 17 to 23 years with the highest infection (15.7%) is similar to that established in this work. This they also attributed to the group being the most sexually active age range which further strengthens the belief that sexual activity could contribute to a large extent, the spread of the disease (Ononge et al., 2005).

Traders had the highest occurrence; this agrees with the report of Wenjin and Yifu (2006). Traders, though have enough money for adequate laboratory/treatments in hospitals, but may not spare time to do so. Thus, it is

likely that most of them could resort to buying and consuming drugs without visiting the hospitals. This amounts to abuse of drugs which is one of the factors that increase the rate of *C. albicans* infections. Rural dwellers are adjudged to be low in personal hygiene than their urban counterparts, thus the higher *Candida* occurrence rate was recorded among them. Inadequate hygiene is one of the factors that increase the occurrence of *Candida* infection.

The findings of this study showed that pregnant women had less prevalence of *C. albicans* 188 (23.2%) than non-pregnant women 623 (76.8%). This could be as a result of the number of pregnant women whose data were reviewed when compared with the number of non-pregnant women.

Perhaps, for this reason it differed from the high incidence rate of *C. albicans* in pregnant women 23 (51.1%) compared to non-pregnant women 12 (30.8%) reported by Isibor et al. (2011) among women attending Irrua Specialist Hospital, Irrua, Nigeria. They attributed this to increased oestrogen content, glycogen in the acidity of the vagina due to rich glycogen content of the vaginal mucosa. This provided ample supply of utilizable sugar that favors the growth of *C. albicans* during pregnancy.

CONCLUSION AND RECOMMENDATION

The findings in this work have made it imperative for

laboratory investigations to be carried out whenever there is symptom of vaginitis in women of reproductive age to identify the correct causative organisms for effective treatment. Since this study has established that the prevalence and distributions of the *C. albicans* among the women are significantly dependent on the following factors: age, marital status, physiologic state, location and occupation of the subjects, the authors are recommending compulsory HVS screenings for women of reproductive age at short intervals as a way of promoting good health. The health planners are also advised to use these findings in their future plans.

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