PREVALENCE OF CANDIDIA INFECTION IN RURAL AREA OF SOUTH WEST, NIGERIA

[1]Jayeoba Kola Bamidele, [2]Ogbonna Mary Aina and [1] Oladapo Iyabo Folake

[1]Department of Basic Medical Sciences, College of Health Sciences and Technology, Ijero-Ekiti Nigeria Jayeobakolao13@yahoo.com; [2]Department of Health Information Management, College of Health Sciences and Technology, Ijero-Ekiti Nigeria

Abstract

Candidiasis is a yeast infection**.** *Candida albicans* is an organism that normally makes a quiet home for itself on the skin, mouth, gastrointestinal tract, vagina, and penis. It may also infect the blood stream or internal organs such as the liver or spleen. This study aims to determine prevalence of candidiasis in rural area of South West, Nigeria. Descriptive retrospective study was conducted using simple random technique to select one thousand five hundred and fifty (1550) patients attended Federal Teaching Hospital, Ido-Ekiti, Ekiti Stste, Nigerian from January to December 2020 tested for *Candidiasis*. Medical records of suspected patients tested for Candidiasis infection were collected from medical records of Health Information Management department. SPSS 19, version19 software was used to analyze data. Data were expressed in frequencies, percentages and bar chart. Statistical significance was set at P<0.05 A total of 605 (39.03%) of the patients were male while 945 (60.97%) of the female were positive. In total of 1550 patients, 55 identified positive, giving an overall prevalence of 3.55%. Eighteen (2.96%) of the 605 male subjects were positive while thirty seven (3.92%) of the 945female subjects were positive. Age group 41-50 had highest prevalence of candidiasis infection (1.42%).None of the subjects in age group 1-20 years tested positive. The prevalence of candidiasis was low. Diagnosed candidiasis was higher in female than male. Nutrition, lifestyle, poor hygiene and self medication differences may be contributed to the higher prevalence of candidiasis among female than male. Therefore people should be sensitized on how to prevent candidiasis in rural area of Ekiti State.

Key Words: Nutrition, Prevalence, Rural area, Retrospective, Organism

Introduction

Candidiasis is a fungal infection caused by a yeast (a type of fungus) called *Candida*. Some species of *Candida* can cause infection in people; the most common is *Candida albicans*. *Candida* normally lives on skin and inside the body, such as the mouth, throat, gut, and vagina, without causing problems. C*andida* can cause infections if it grows out of control or if it enters deep into the body (Centers disease control and preventions, 2022).

There are different types of candidiasis which include; Thrush (Oropharyngeal Candidiasis) is the Candida yeast infection develops in the mouth and spread to the throat. Oral thrush most often occurs in infants and toddlers. It causes white or yellowish bumps to form on the inner cheeks and tongue (Karen, 2019). It is also common in elderly, and people with weakened immune systems**.** Also more likely to get it are adults who: are being treated for cancer, on medications like corticosteroids and wide-spectrum antibiotics, wearing dentures and have diabetes (Neha, 2021). When thrush occurs in males, it can affect the head of the penis and the foreskin. It can lead to inflammation of the head of the penis, known as balanitis. Symptoms include an itchy rash, red skin; swelling, irritation, and itching around the head of the penis, lumpy discharge under the foreskin, or pain when urinating and during sex (Daniel, 2018). It is fairly common and affects approximately 3-11% of males during their lifetime. Balanoposthitis involves both the glans and the foreskin and occurs in approximately 6% of uncircumcised males. Balanoposthitis occurs only in uncircumcised males (Wray, et al, 2023)

Vaginitis is an infection of the female genitals often caused by yeasts and other fungi. It is known to be stimulated by the overgrowth of *Candida* in the vagina and is a common infection of the female genital tract (Emeribe,et al, 2015; Mbakwem-Aniebo,et al, 2020). It may also be caused by *Trichomonas vaginalis, Gardnerella vaginalis* and *Chlamydia trachomatis* or a combination of these various microorganisms. When caused by *Candida* spp., it is often referred to as vulvovaginal candidiasis (VVC) and is

characterised by itching, erythema and curd-like vaginal discharge (Rathod, et al, 2012; Nelsonet al, 2013; Mbakwem-Aniebo,et al.2020).

The increase in the prevalence of serious fungal infections has been documented in some parts of the world. For instance, data from a survey of the epidemiology of sepsis conducted in the USA revealed that the incidence of fungal sepsis increased three-fold between 1979 and 2000 (Oladele and Denning, 2014; Rhee and . Oropharyngeal colonization is found in 30%-55% of healthy young adults, and *Candida* species may be detected in 40%-65% of normal fecal flora. Three of every 4 women experience at least one bout of VVC during their lifetime (Jose, 2020). And most often the diagnosis was made postmortem implying a low index of suspicion and treatment. It has been estimated that 4% of all patients who die in hospitals die of invasive aspergillosis and 2% die of invasive candidiasis. (Oladele,etal, 2014; Ocansey,et al, 2019). The reviewed on candida Africana infections published papers from 1991 to 2019. One hundred forty-four out of 287 patients were identified with *Candida* infection, among which 151 isolates of *Candida* were obtained. *Candida albicans* 109 (72.1%), *Candida glabrata* 21 (13.9%), *Candida krusei* 8 (5.2%), *Candida tropicalis* 5 (3.3%), *Candida africana* 3 (1.9%), *Candida parapsilosis* 3 (1.9%) and *C*. *dubliniensis* 2 (1.3%) were isolated from patients. One hundred fifteen (40.6%) of patients with *C*. *africana* candidiasis were from seven African countries (Fakhim, *et al.,* 2020). Few researchers had been worked on vulvovaginal candidiasis in Ekiti state but not on prevalence of candidiasis infection in Ekiti State.

Methods

Descriptive retrospective study was adopted for this study. Simple random sampling technique was adopted to select one thousand five hundred and fifty (1550) patients attended Federal Teaching Hospital, Ido-Ekiti, Ekiti Stste, Nigerian from January to December 2020. Medical records of suspected and confirmed patients for candidiasis were collected from health information management unity of Federal Teaching Hospital, Ido-Ekiti. Data collected was analyzed by imploring the use of the SPSS 19.0 software for Windows (SPSS, Inc, Chicago, IL, USA). Results were represented in percentages, frequency and charts. Statistical significance was set at $P<0.05$

Results

In total of one thousand five hundred and fifty (1550) patients, 55 identified positive, giving an overall prevalence of 3.55%. This is illustrated in Table 1. A total of 605 (39.03%) of the patients were male while 945 (60.97%) . This is illustrated in Table 2. Eighteen (2.96%) of the 605 male subjects were positive while thirty seven (3.92%) of the 945female subjects were positive. This is illustrated in Table 3 & Graph 1. Age group 41-50 was mot infected by candidiasis infection (1.42%).None of the subjects in age group 1-20 years tested positive. This is represented in Table 4 below

TABLE 1: Test Results for Candidia Infection

	HVS	URINE	WOUND	SPUTUM	TOTAL	PERCENT
POSITIVE	21	5	22	18	55	3.55
NEGETIVE	584	220	480	240	1524	

The Table 1 above represented test result of candidia infections from different samples.
3.55 % was identified positive.

TABLE 2: Gender

	No of Patients	Percent (%)
MALE	605	39.03
FEMALE	945	60.97

Table 2 revealed that 39.03% were man and 60 .97% were female

TABLE 3: Incidence of Candidia infection among sex

SEX	High Vagina Swabs	Urine	Wound	Sputum	TOTAL
Male	O	O	6	12	18
Female	21	5	5	6	37

The Table 3 above represented incidence of candidia infection among Sex. Female were more infected than male.

TABLE 4 : Distribution of Candidia Infections among Age Groups

AGE	HVS	URINE	WOUND	SPUTUM	TOTAL	PERCENT
1-10 Years	Nil	Nil	Nil	Nil	Nil	0.0
11-20Years	Nil	Nil	Nil	Nil	Nil	0.0
21-30 Years	1	Nil	Nil	2	3	5.5
31-40 years	6	1	3	6	16	29.0
41-50Years	9	2	2	9	22	40.0
51-60 years	5	2	6	1	14	25.5
Total					55	100

The above Table 4 represented distribution of candidia infections among age groups. Age group of 41-50 years had the highest infection while age groups 1-20 were not infected from candidiasis.

Discussion

The study was done in Federal Teaching Hospital, Ido-Ekiti. Patients from rural area or referred patients from general hospital and primary health centers were attended the Federal Teaching Hospital Ido-Ekiti. In this study, a prevalence of 3.55% of candidiasis in the patients attending Federal Teaching Hospital, Ido-Ekiti was reported. Female had prevalence of 3.92% while male was 2.95%. The main causes of candidiasis in female is referred to as vulvovaginal candidiasis (Mbakwem-Aniebo,et al.2020). The prevalence of vaginal candidiasis reported by different studies were 16.5%, 21.31%, 19% and 14% (Emeribe, et al, 2015; Micheal,et al,2022). The prevalence of this result is very low compare to other different studies may be attributed to adequate knowledge, good personal hygiene, and normal levels of estrogens and corticoids (Okwelle and Bara-Hart, 2022).Thrush occurs in male is known as balanitis (Daniel, 2018). The prevalence of candidiasis in male is similar to previous studies stated that it is fairly common and affects approximately 3-11% of males during their lifetime (Anton, et al, 2022). However, the study by Lisboa, et al who reported prevalence of candida balanitis was 18%. Female were more infected in Candida species than male. This may be due to high sexual activity, poor personal hygiene and the use of contraceptives among female.

Candida species were observed mostly among the age-group 41-50 years (22 [40%]), followed by 31-40 years {16 (29%)} and least among those less than 20 years. High prevalence observed in age 41-50 is similar to the previous study stated that the intensity of growth was greater in the female group than among the males, presenting microbiologically as intermediate, intense, and abundant growths of yeast. Which were common in the youngest group of patients (those ≤50 years of age) (Jolanta, et al, 2016). The finding of this study is different previous study by Micheal,et al who stated that candida- positive cultures were observed mostly among those aged 20-30 years, at 36 (45.0%) and lowest among those less than 20 years 2(1%)..

Conclusion

The prevalence of candida infection was low compared to other state in Nigeria. The findings also revealed that the highest prevalence candida infection among patient age 41-50 years.

Recommendations

The prevalence of candida infection is high in female than male. Therefore , this study thus recommend that medical practitioners via different route of engagement such as conferences, workshop and seminars should emphasis on laboratory diagnosis of candida infection for identification of fungal isolate before commencement of treatment. Furthermore, health educators should create awareness for routine screening and methods perfection is highly recommended for both men and women of reproductive age.

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