

Prevalence of asymptomatic Co-Infection of Candidiasis and Vaginal Trichomoniasis among Pregnant Women in Abakaliki, South-Eastern Nigeria

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ABSTRACT

One thousand five hundred (1500) pregnant women at their different trimesters who are within the age of 20 and 40 years were investigated for the prevalence of co-infection of *Candida albicans* and *Trichomonas vaginalis* in Abakaliki, South-Eastern Nigeria between March and October 2010. Their personal biometric data and trimesters of gestation were documented. The vaginal swab specimen were examined using wet preparation technique, and culture. Germ-tube test was specifically used for the *C. albicans*. Three hundred and twenty six (22%) had asymptomatic coinfections while 412 (27.5%) and 355 (24%) had asymptomatic candidiasis and trichomonas as single infection respectively. Women within the age bracket of 31-35 had the highest prevalence of *T. vaginalis* (36.00%) while those within 36-40 years and 26-30 years had the highest prevalence of *C. albicans* (33.33%) and co-infections (43.00%) respectively. Women within their 3rd trimesters of pregnancy had the highest prevalence of 30.40% and 32.41% respectively for *T. vaginalis* and *C. albicans*, while those in their 2nd trimester had the highest prevalence in co-infections (30.00%).

Keywords: Asymptomatic, prevalence, co-infection, *Candida albicans*, *Trichomonas vaginalis*

INTRODUCTION

Vaginitis originating from pathogens is a common and serious health problem among women of childbearing age. *Candida albicans* and *Trichomonas vaginalis* are among the common pathogens responsible for vaginitis especially in women of childbearing age. These organism may occur as single infection or as co-infections.

Candidiasis is associated with vaginal discharge and pruritis. The discharge appears to be like curded milk and deep erythma of vulva and vagina is often seen (Khan *et al.*, 2009). The incidence of the infection is almost doubled in pregnancy women particularly in the third trimester, compared to the non-pregnant women. It always reoccurs during pregnancy as a result of the increased levels of estrogens and corticoids that reduce the vaginal defense mechanism against such opportunistic infections as *Candida* (Sobel, 1997). It has been estimated that up to 40% of pregnant women world-wide may have vaginal colonization by *Candida* species, a two-fold increase from the prevalence rate in non-pregnant women (Hay and Czeizel, 2007).

Trichomoniasis is the most prevalent non-viral sexually transmitted infection worldwide (Shira and Frank, 2006). Even though the infection is associated with vaginitis and urethritis, the disease encompasses a broad range of symptoms, ranging from a severe inflammation and irritation with fruity malodourous discharge to a relatively asymptomatic carrier stage. The World Health Organization (WHO) estimates the world prevalence of trichomoniasis to be 174 million and to account for 10-25% of vaginal infections (WHO, 2001).

Pregnant women infected with *T. vaginalis* may be at the risk of adverse birth outcomes such as premature rupture of membrane, premature labour, low birth weight and post abortion or post hysterectomy infection, as well as infertility and enhanced predisposition to neoplastic transformation in cervical tissues (Uneke *et al.*, 2006). It has also been documented that *trichomonas* infection can increase the risk of transmission of HIV infections (Cohen, 2000).

In Nigeria, previous documented reports of *trichomoniasis* abound. They include (Jatu *et al.*, 2006 and Usanga *et al.*, 2010).

The prevalence of the pathogens, often asymptomatic nature, and their predisposing potency in pregnancy outcomes and HIV/AIDS transmission necessitate this write up. Public health awareness and prompt and proper medical check-ups are highly recommended for pregnant women. Hence this was evaluated to ascertain prevalence of asymptomatic co-infection of candidiasis and vaginal trichomoniasis among pregnant women in Abakaliki, Nigeria.

MATERIALS AND METHODS

Study Area

The study was conducted in the Federal Medical Centre, Abakaliki, Ebonyi State. The study centre is located within Abakaliki Metropolis. Abakaliki is the capital city of Ebonyi State in South Eastern part of Nigeria. The vegetation characteristic of the area is that of the tropical rainforest with an average rain fall of about 1,600 mm and an average atmospheric temperature of 36°C. Two main seasons – wet and dry characterize

the area, with the former happening between April and October while the later takes place from November to March.

Ethical Consideration

The study was approved by the ethical committee of the Federal Medical Centre, Abakaliki. Informed consent was sought from the participants before their enrolment. The study was conducted in line with the international guideline for experimentation (WMADH, 2000)..

Study Population and Sampling Techniques

The study was conducted on one thousand five hundred (1,500) pregnant women attending antenatal clinic at Federal Medical Centre, Abakaliki between March and October, 2010. After obtaining informed consents, personal biometric data and trimesters of pregnancy were documented. High vaginal swab was employed. Collected specimens were analyzed using wet mount preparations and staining techniques. Specimens were also cultured in Diamond media and incubated at 37°C for 48 hours. Germ tube test was carried out specifically for the identification of *Candida albicans*.

Statistical Analysis

The data were analyzed using descriptive statistics. Descriptive statistics was used to calculate the frequencies and proportions.

RESULTS

The various results for the test and analysis carried out are shown below:

Table 1: Age-related prevalence of *Trichomonas vaginalis*

Age group (years)	No. Examined	No. Infected	Prevalence (%)
21-25	240	86	35.83
26-30	400	40	10.00
31-35	500	180	36.00
36-40	360	49	13.61
Total	1500	355	23.67

Table 2: Age-related prevalence of *Candida albicans*

Age group (years)	No. Examined	No. Infected	Prevalence (%)
21-25	240	49	20.42
26-30	400	104	26.00
31-35	500	139	27.80
36-40	360	120	33.33
Total	1500	412	27.47

Table 3: Age-related prevalence of co-infection of *Trichomonas vaginalis* and *Candida albicans*

Age group (years)	No. Examined	No. Infected	Prevalence (%)
21-25	240	62	25.83
26-30	400	172	43.00
31-35	500	36	7.20
36-40	360	56	15.56
Total	1500	326	21.73

Table 4: Prevalence of infection according to trimesters of pregnancy

Age group (years)	<i>T. vaginalis</i>			<i>C. albicans</i>			Co-infection		
	No. Examined	No. Infected	Prevalence (%)	No. Examined	No. Infected	Prevalence (%)	No. Examined	No. Infected	Prevalence (%)
1 st	550	108	19.64	490	100	20.41	475	80	16.84
2 nd	450	95	21.11	470	137	29.15	480	144	30.00
3 rd	500	152	30.40	540	175	32.41	545	102	18.72
Total	1500	355	23.67	1500	412	27.47	1500	326	21.73

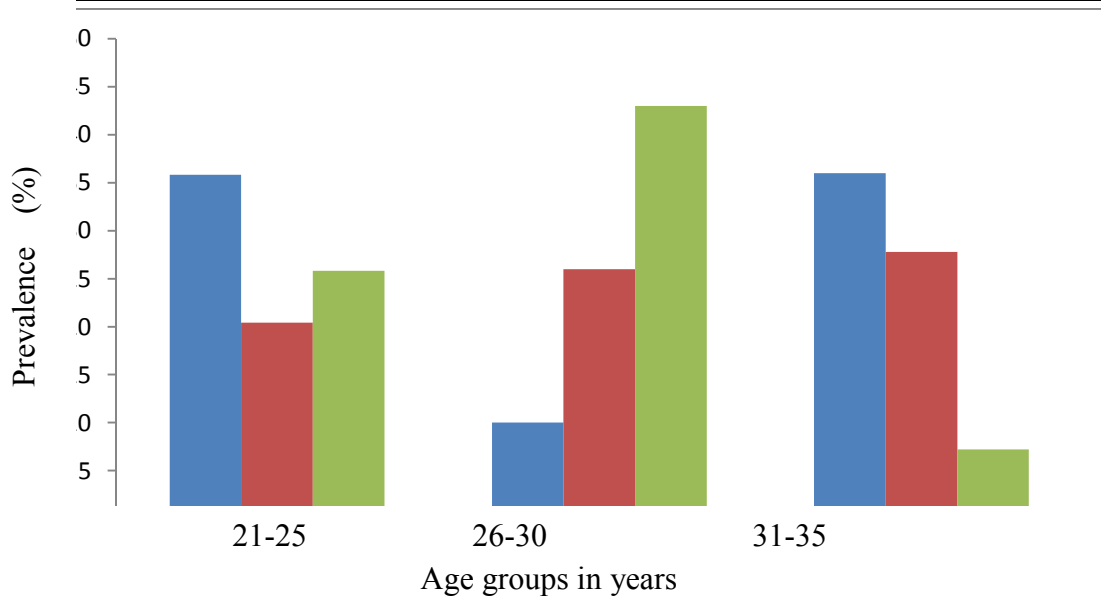


Figure 1: Age-related prevalence of infections

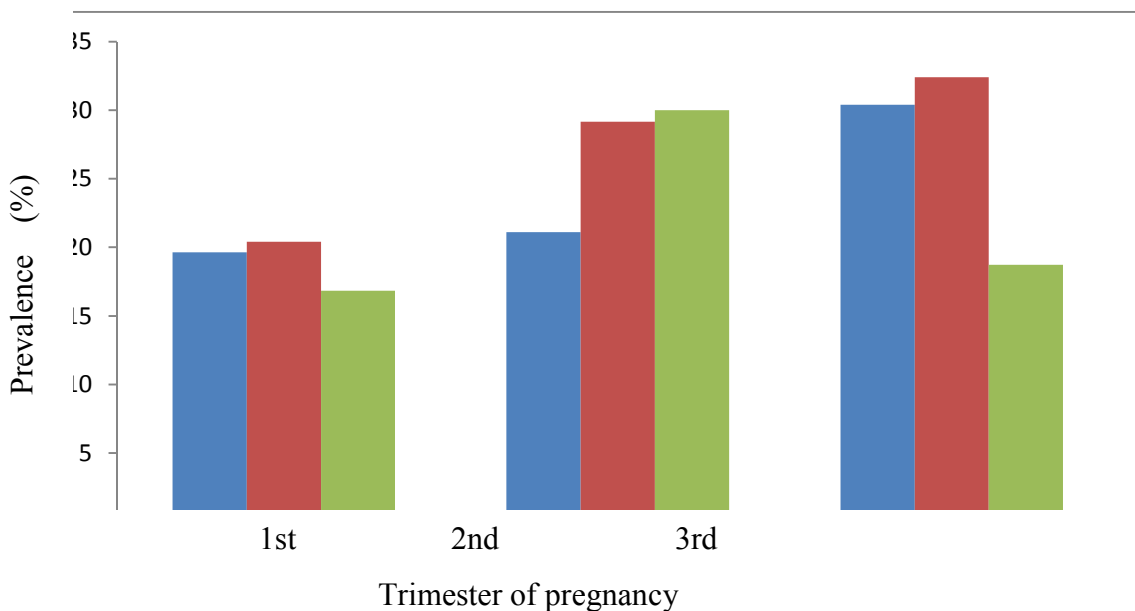


Figure 2: Trimester-related prevalence's of infections

Key:  *T. vaginalis*  *C. albicans*  Co-infection

DISCUSSION

The study investigated infections of candidiasis and trichomoniasis among pregnant women attending the Federal Medical Centre, Abakaliki, South Eastern Nigeria. One thousand five hundred (1,500) pregnant women of varying trimesters who are within the bracket of 20 and 40 years were enrolled in the study between March and October, 2010.

Three hundred and twenty-six (22%) of the women had asymptomatic co-infection of *Candida* and *trichomonas* while 412 (27.5%) and 355 (24%) had asymptomatic candidiasis and trichomoniasis as single infections respectively. Women within the age group of 31-35 years has a very slight higher prevalence of *T. vaginalis* than those between 20 and 25 years (36.00% vs 35.83%) (Table 1 and Figure 1). Higher prevalence of *C. albicans* (33.33%) was recorded within the age bracket of 36-40 years while those within 20 and 25 years had the lowest prevalence (20.42%) as indicated in Table 2. The high prevalence of co-infection was recorded among

women in the age bracket of 26-30 years while those within 31-35 years had the least prevalence of 7.20% (Table 3).

With respect to infection and trimester of pregnancy, women within their 3rd trimester had the highest prevalence of *T. vaginalis* and *C. albicans* (30.40% and 32.41% respectively) while those in their 1st trimesters had the least of prevalence of the infections (19.64% and 20.41%) respectively. Women within their 2nd trimesters of pregnancy had the highest prevalence of 30.0% while the prevalence in 3rd trimester (18.71%) is slightly above that of the first (16.84%).

The 24% prevalence of trichomoniasis recorded in this study is in consonance with the findings of Jombo et al. (2006), who reported a prevalence of 24.1% in Jos, Nigeria. This finding of high prevalence is also in line with those of Shutter et al. (1998) and Franklin and Monif (2000) who reported the prevalence of 46.9% and 36.1% in New York and Nebraska respectively. The prevalence of 24% of trichomoniasis recorded in this study is however higher than those reported by Aboyeji and Nwabuisi (2003) and Usanga et al. (2010) who recorded 4.7% and 5.2% respectively in Ilorin and Calabar.

The high prevalence of infection recorded in *T. vaginalis* (36.00%) within the age group of 31-35 years and that of 43.00% in co-infections within the age group of 26-30 years is in agreement with a generally observed fact that the incidence of sexually-transmitted diseases (STDs) by the number of yearly treated cases is higher among the younger age groups (Donbraye et al., 2010). This could be as a result of the fact that this age group is still sexually active.

The finding that pregnant women within their 3rd trimesters had the highest prevalence of 30.40% and 32.41% respectively for *T. vaginalis* and *C. albicans* (Table 4 and Figure 2) is in line with the report of other workers (Okpara et al., 2009 and Okonkwo et al., 2010). The prevalence recorded in the co-infection in the 2nd trimester also corroborates with the report of Bakare et al. (2002). In fact there are varied reports on trimesters while some authors even reported no association between prevalence of infection and gestation age.

CONCLUSION

Owing to the detrimental effects of Candidiasis and Trichomoniasis in pregnancy, their predisposing effects in HIV/AIDS infection and other pathogenic effects including inflammations, prompt reporting, appropriate diagnosis and treatment. Hence there is need to create awareness education through campaign, symposium, seminar, conference and media on the detrimental effect of this dangerous combination “Candidiasis and Trichomoniasis” in pregnancy.

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