

Risk Factors For Vaginal Trichomoniasis Among Women In Uyo, Nigeria

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Abstract

In view of the public health importance of trichomoniasis among women, this study assess the prevalence and risk factors associated with this infection. A total of 260 high vaginal swabs were collected from women attending gynaecological and antenatal clinics in Uyo, Nigeria. The samples were subjected to standard parasitological method of diagnosis of *Trichomonas vaginalis*. The result showed that 46 (17.7%) of the women examined were infected with *T. vaginalis*. Age related prevalence of infection showed that subjects aged 21 – 25 years had the highest prevalence of infection (26.9%) while those aged >40 years had the least prevalence (3.6%) and this was statistically significant. Traders (33.3%) had the highest infection rate when compared with other occupational groups ($p < .05$). Other statistically significant risk factors included, no formal education, single status, pregnant women, primigravidity and the third trimester of pregnancy. *Trichomonas* is associated with significant obstetric and gynaecological morbidity, there is need for education of at risk women on the modes of transmission as a strategy for prevention and control.

INTRODUCTION

Human trichomoniasis is a sexually transmitted infection caused by the protozoan parasite *Trichomonas Vaginalis*. This infection is the most common non-viral sexually transmitted disease worldwide¹. Infection often leads to vaginitis and acute inflammatory disease of the genital mucosa¹. Approximately, about 180 million women are infected with trichomoniasis worldwide annually². In Africa, it is estimated that 2-50% of the population carry the infection³.

The disease has important medical, social and economic implications. Women who are infected during pregnancy are predisposed to preterm rupture of the placental membrane, preterm labour, delivery of low birth weight infants and increased infant mortality^{4,5}. As with other sexually transmitted infections STIs, *T. vaginalis* infection can increase the risk of transmission to HIV infection^{6,7}. The disease has also been reported in the urinary tract, fallopian tubes and pelvis^{8,9} and could cause Pneumonia, bronchitis and oral lesion^{10,11}. In Nigeria there are documented reports on the prevalence of *T. vaginalis*^{12,13,14,15} but to the best knowledge of the authors, no similar study has been done in this environment. Also despite all these reports there is still paucity of information on the risk factors for trichomonas

infection. The aim of this present study therefore, was to determine the prevalence and risk factors associated with trichomoniasis infection among women in Uyo, Southern Nigeria.

MATERIALS AND METHODS

STUDY AREA

The study was carried out in Uyo, Southern Nigeria the capital of Akwa Ibom State located in the South-south part of Nigeria. It lies within the tropical rainforest belt of the country on latitudes 5° 20' and 5° 32' East of the Greenwich Meridian. There are two distinct seasons namely the wet season (March – October) and dry season (November – February). Uyo is relatively dense populated and the general sanitation standard is below average. Most of the inhabitants are of medium and low socio-economic status who live in brick and mud houses. Majority of the women are housewives, petty traders and farmers. There are two government owned tertiary health institutions where cases can be referred, these are the St. Luke's Hospital, Anua, Uyo and University of Uyo Teaching Hospital, Uyo.

SAMPLE COLLECTION

The study was conducted between July and October, 2004. Samples were collected from 260 randomly selected women attending the outpatient gynaecological and antenatal clinic

of St. Luke's hospital, Uyo. The high vaginal swabs were collected from the female subjects using a clean sterile vaginal swab sticks after the passages of a sterile bivalve speculum. Questionnaires then were administered to collect data on socio-demographic and obstetric history. The samples were labelled and transported immediately to the laboratory for analysis. A drop of normal saline was introduced into the pack of each subject's vaginal swab and mixed by shaking vigorously to wet the swab. A drop of the mixture of each sample was placed on clean grease free slide, covered with coverslip and examined microscopically for the characteristic jerking movement of *T. vaginalis* as described¹⁶.

ETHICAL CONSIDERATION

The Management of the hospital gave ethical clearance. Informed consent was sought and obtained from individuals.

DATA ANALYSIS

Version 6.04d of the Epi Info software package (Centers for Disease Control and Prevention, Atlanta, GA) was used for the data storage. All the data were entered into an Epi Info database, checked for entry errors and then analysed in version 14.0 of SPSS.

RESULTS

Of the 260 subjects selected and examined for this study 46 (17.7%) were infected with *T. vaginalis*. Age-related prevalence of infection showed that the most affected age group was 21 – 25 years (26.9%), while the least prevalence of infection was recorded amongst the age group > 40 years (3.6%) and this was significantly ($P < 0.05$). Table 1. Occupational related prevalence of trichomoniasis showed that the highest infection rate (33.3%) was observed among traders followed closely by students (31.3%) while housewives recorded the least infection rate (7.0%). Table I. Women with no formal education were the most affected group with an infection rate (54.5%), while women with tertiary education were the least affected with a prevalence of (11.0%). Single women had higher prevalence (21.4%) than married women (17.5%) at $P < 0.05$. No infection was recorded in widows.

Figure 1

Table 1: Infection rate of in relation to socio-demographic status

Variable	No Examined	No infected	% infected
Age			
16 – 20	26	3	11.5
21 – 25	52	14	26.9
26 – 30	92	19	20.7
31 – 35	44	8	18.1
36 - 40	18	1	5.6
40 and above	28	1	3.6
Total	260	46	17.7
Occupation			
Civil servant	36	8	22.2
Trader	66	22	33.3
Student	16	5	31.3
Housewife	142	11	7.8
Total	260	46	17.7
Education			
No formal education	22	12	54.5
Primary	180	24	13.3
Secondary	40	8	20.0
Tertiary	18	2	11.0
Total	260	46	17.7
Marital status			
Married	228	40	17.5
Single	28	6	21.4
Widow	4	-	0
Total	260	46	17.7

Table II shows the prevalence in relation to the obstetric status. Pregnant women were more infected (24.3%) than non-pregnant women (13.3%), primiparous women were more infected (50.5%) than multiparous women (17.2%) $P < 0.05$. Women in their third trimester of pregnancy were significantly ($P < 0.05$) more infected (40%) than those in their second trimester (20%). No case of infection was observed in women in their first trimester of pregnancy, lactating mothers and post menopausal women.

Figure 2

Table 2: Infection rate of in relation to obstetrics status

Variable	No Examined	No infected	% infected
Parity			
Primigravidae	30	15	50.0
Multigravidae	110	19	17.2
Menstrual status			
Pregnant	140	34	24.3
Non-pregnant	90	12	13.3
Lactating	20	0	0
Post menopause	10	0	0
Pregnancy trimester			
First	20	0	0
Second	70	14	20.0
Third	50	20	40.0

DISCUSSION

This study shows that trichomoniasis is in Uyo. The prevalence obtained in this study is similar to reports of other investigators in different parts of Nigeria^{12,13,15}. This present result contrasts the low prevalence of 2.8% and 8.4% recorded by Uneke et al.¹⁷ and Wokem¹⁸ respectively. Limitation of this study included the use of wet mount smears in the diagnosis of *T. vaginalis* as it cannot detect non-viable protozoa and only motile organisms can be identified. It is possible that the prevalence recorded in this study could have been higher if we had employed a more sensitive diagnostic technique such as immunofluorescent staining of vaginal fluid¹⁹. The higher prevalence of infection observed among the younger age group 21 – 30 years in this study corroborates the findings of previous workers^{13,15,20,21}. In Nigeria, sexual activity is higher among this age group. This active sexual life might have contributed to the high prevalence observed in this age group. This is contrary to the report of Shutter et al.²², who obtained a higher prevalence of trichomoniasis among older age groups of pregnant women in New York, USA. There was also a higher prevalence of trichomoniasis among pregnant women than non-pregnant women. This might be due to the greater pelvic vascularity and oestrogenic activity on the vaginal epithelium which causes growth maturation and exfoliation of the squamous cells and an increase in glycogen deposits in vaginal epithelial cells²¹. *T. vaginalis* is reported to be associated with the alkaline vaginal environment that occurs during pregnancy due to changes in the pH of the vaginal mucosa²¹. There was a significant association between trichomonas infection and parity, primigravidae were more infected than multigravidae while women in their third trimester were more infected than women in the first and

second trimester. These observations might be due to hormonal changes that occur during pregnancy, these changes tend to favour the growth and development of the parasite as the pregnancy progresses. In this study, single women were more infected than married women. In traditional African settings, single women tend to have more sex partners than married women, this might have contributed to the higher rate of infection observed among this group. Women with no formal education were more infected than those with basic education. This finding is consistent with previous reports^{11,23}. Since *T. vaginalis* is primarily sexually transmitted, educational efforts must be aimed at high risk groups including women without any formal education and must be explicit regarding the behaviours that lead to the spread of *T. vaginalis*, HIV and other STIs¹⁷. This is very crucial to maternal health, because other vaginal infections such as bacteria vaginosis, and vaginal candidiasis frequently coexist in pregnant women infected with *T. vaginalis*^{16,24} and predispose to preterm rupture of placenta membrane and preterm labour. The high rate of infection observed among traders in this study, is similar to previous reports^{17,18}. This prevalence may be associated with their active social life with little or no personal preventive measures. Sexual permissiveness associated with affluence, lack of awareness, poverty and ignorance of the public health implication may likely be uppermost in the list of factors¹⁸.

The prevalence of *Trichomonas vaginalis* (17.7%) among the women in our study indicates that this infection is of public health concern. Since trichomoniasis is an infection closely tied with sexual behaviour, ignorance, age, occupation, poor moral consciousness, poor sanitary and personal hygiene¹⁸. There is the need to educate the public especially women about this disease, and its means of transmission, as a strategy for prevention and control.

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