

## DETECTION AND PREVALENCE OF TRICHOMONAS VAGINALIS AMONG WOMEN IN BIRNINKEBBI, NORTH WEST NIGERIA

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### Abstract

This study aimed at investigating the prevalence of Trichomoniasis among women in Birnin Kebbi -Kebbi State, Nigeria. Trichomoniasis is a sexually transmitted disease associated with reproductive health complication and various other genitourinary tract syndrome including cervicitis, epididymitis and proctitis. The risk of Trichomonas vaginalis is higher in women. Two hospitals were used as the study area, Sir Yahaya Memorial Hospital (S.Y.M.H) and the Vesico Vagina Fistula (V.V.F) centre all in Birnin Kebbi Metropolis. Questionnaire was used to obtain information on the age and educational status of the two hundred and twenty patients studied. Urine and high vaginal swab samples collected were analysed using standard parasitological method, for the identification of flagellate form of Trichomonas vaginalis. Out of the 220 women studied, 4.1% (7 of 170) pregnant women were significantly more infected with Trichomonas vaginalis than non pregnant women 4% (2 of 50 samples)( $p < 0.05$ ). T. vaginalis detection was significantly dependent on the sample used ( $p < 0.05$ ) swab samples had 13.5% (5 of 37) than urine 2.2% (4 of 183). women aged between 20-29 years had higher rate of infection 6%, (6 of 100) followed by <20 years age group 4% (2 of 50) with least prevalence in 30-39 years age group 2 (1 of 50). While women aged >40 tested negative for the infection with T. vaginalis. Infection with T. vaginalis is age dependant ( $p < 0.05$ ). the result of this study shows no relationship in educational status and infection with T. vaginalis. This study has confirmed the existence of Trichomonas vaginalis infection among women in Birnin Kebbi, Kebbi State. This suggest the need for control of Trichomoniasis through public health programmes including; persistent efforts to educate people on the need to improve on their personal hygiene, screen, diagnose, and treat infected patients.

**Keywords:** *T. vaginalis, trichomoniasis, sexually transmitted infections prevalence, women, Birninkebbi.*

### Introduction

Trichomonas vaginalis is a causative agent of sexually transmitted infection (or sexually transmitted disease STD) known as trichomoniasis. The parasite which is usually found in the vagina and urethra tissues of human, presents medical, social and economical implication (Pierre et al, 2011). These include, discomfort and psychosocial distress in infected patients (Jatau et al, 2006). Although this condition is most often treated in women, men can also be infected (and often have no symptoms). The pathological effect of

the parasite includes production of mechanical stress on host cells and then ingestion of cell fragments after death (Schwebke, 2004).

Rein (1995) rated Trichomonas vaginalis infection as the most prevalent non-viral sexually transmitted disease in the world. Approximately 180 million women worldwide are infected with Trichomonas vaginalis annually (Nwadioha et al, 2012). The infection elicits a broad range of clinical symptoms varying from asymptomatic to severe inflammatory manifestations. Around 25-50%

of the infected females are asymptomatic, while in symptomatic females, the disease is characterized by vulvo vaginitis, cervicitis and urethritis. This may be associated with dysuria, dyspareunia and abdominal pain. Trichomoniasis has been found to be associated with adverse pregnancy outcome like preterm rupture of membrane; low birth weight babies, post abortion and post hysterectomy complications (Swygard et al. 2004). Majority of female patient harboring this organism present with vaginal discharge, which is usually frothy, greenish yellow and offensive (Nwadioha et al, 2012).

*Trichomonas vaginalis* is detectable in vaginal, prostatic or urethral secretion, semen and urine of infected individuals (Jatau et al., 2006). Direct examination of the wet mount preparation of clinical specimen is the most rapid, most commonly used and least expensive method for identifying the flagellate form of *Trichomonas vaginalis* (Alcama, 2000). The aim of this study is to examine the prevalence rate of *Trichomonas vaginalis* infection, age distribution of the infection, distribution of the infection by educational status, and to compare the occurrence rate of the parasite between urine specimen and swab collection among women in Birninkebbi metropolis, Nigeria.

#### Materials and methods

**Study Area:** The study location was Birnin Kebbi the Capital of Kebbi State is in North-Western Nigeria. The State was founded from part of Sokoto State in 1991. Kebbi State is bordered by Sokoto State, Niger State Dosso region in the republic of Niger and the nation of Benin. It has a total area of 36,800 km<sup>2</sup>. The study is conducted in two different hospitals. The hospitals include Sir Yahaya Memorial Hospital (S.Y.M.H) and Vesico vagina fistula centres (V.V.F) Birnin Kebbi.

**Ethical Consideration:** Ethical

approvals were obtained from the hospitals included in the study and informed consent of the subjects was sought before commencing the research.

**Administration of Questionnaire:** Structured questionnaire was used to source information on clinical status and microscopic analysis associated with Trichomoniasis from the patients sampled. The entire patients examined were selected based on their willingness to participate after a dialogue with the researchers.

**Sample Collection:** The samples were collected between the month of July and August, 2011. A total of 183 urine and 37 swab samples was collected for the purpose of the study. A leak proof universal container was given to the patient to void their urine, high vagina swab were also collected by the clinical staff assistant. The samples were transported to microbiology laboratory of Waziri Umaru Federal Polytechnic for parasitological analysis.

**Laboratory Analysis:** Wet mount microscopy of a smear of the discharge made on a slide in addition with an air dried smear was used for HVS samples. The slide smear was fixed with absolute methanol for about one minute. The slide was then placed on the rack and flooded with Giemsa stain solution for 10 minutes, the stain was washed off with water. After which, the slides were examined microscopically using the 10x and 40x objectives with the condenser Iris closed to give good contrast as described by Cheesbrough (1998). While wet mount preparation was used for urine specimen as described by Cheesbrough (1998). The urine sample was spun then wet mount preparations were made on the slide. This was examined microscopically using 10x objective with the condenser iris closed to give a good contrast. The flagellate form of *Trichomonas vaginalis* were searched for and the number of positive

and negative slide were recorded.

Data Analysis: The results were analysed using percentage prevalence as described by (Margolis, et. al., 1982). Chi-square statistical infection was used to compare the prevalence of the infection and various variables.

### Results and Discussion

The results obtained were reported in tabulated form as shown below

Table 1: prevalence of Trichomonas vaginalis in sample obtained from S.Y.M.H and V.V.F center

Hospital	No examined	No Infected	% Infected
S.Y.M.H	183	8	4.4%
V.V.F	37	1	2.7%
Total	220	9	4.1%

Table 2: Prevalence of T. vaginalis Infection n Relation to Type of Specimen

Sample	No examined	No Infected	% Infected
Urine	183	4	2.2%
Swab	37	5	13.5%
Total	220	9	4.1%

Table 3: Prevalence of T. vaginalis Infection Relation To Pregnancy Status.

Sample	No examined	No Infected	% Infected
Pregnant women	170	7	4.1%
Non pregnant women	50	2	4.0%
Total	220	9	4.1%

Table 4: Prevalence of T. vaginalis Infection in Relation To Age Group

Age (Years)	No examined	No Infected	% Infected
<20	50	2	4 %
20-29	10	6	6%
30-39	50	1	2%
≥40	20	-	-
Total	220	9	4.1%

Table 5: Prevalence of T. vaginalis Infection in Relation To Educational Status

Educational Status	No examined	No Infected	% Infected
None	25	1	4 %
Qur'anic	15	-	-
Primary	6	16.2%	
Secondary	100	1	1%
Tertiary	43	1	2.3%
Total	220	9	4.1%

The total overall prevalence of Trichomonas vaginalis infection among 220 female patients examined was 9 (4.1%). The result of this study has demonstrated the prevalence and occurrence of Trichomonas vaginalis infection among women in Birnin Kebbi, Kebbi State. Low prevalence encountered in this study is synonymous with previous studies, for example 2.2% Of 544 women recorded in Lagos, Nigeria (Adeoye and Akande, 2007). 2.0% of 200 male and female reported in Ibadan, Nigeria (Okonko, et al, 2012). However the prevalence of the infection is considerably low when compared with the finding of Jatau et al., (2006) among women attending antenatal clinics in Zaria, Nigeria, 18.66% of 300 prevalence rate of T. vaginalis infection was recorded. Of the 183 samples collected from S.Y.M.H 8 (4.4%) were positive for Trichomonas vaginalis while 1(2.7%) were infected out of the 37 sampled from the V.V.F center (Table 1). The differences in the infection rate among hospital was statistically significant ( $p < 0.05$ ). the observed low prevalence in V.V.F center may due to the fact that female attending this hospitals had vesicovaginal fistula syndrome which hinder their sexual activity while most patient recruited for this study at S.Y.M.H were pregnant women which is and evidence of sexual contact hence the tendency of transmission of T. vaginalis infection.

T. vaginalis detection was significantly dependent on the sample used ( $p < 0.05$ ) swab samples had 13.5% (5 of 37) than urine 2.2% (4 of 183) (Table 2). It is obvious that the detection of the parasite in high vaginal swab will be higher than urine of female, this is due to the predilection of T. vaginalis flagellate to

the vaginal tract of female which enhance their survival (Ochei and Kolahaktar, 2000).

In this study, pregnant women were significantly ( $p < 0.05$ ) more infected with *Trichomonas vaginalis* 4.1% (7 of 170) than non pregnant women 4.0% (2 of 50 samples). This indicates high risk to the expectant mother and her foetus. Jatau et al. (2006), described the risk factors involved in treatment of pregnant women infected with *T. vaginalis* infection. This include the side effect of the drug of choice for treatment metronidazole, due to its mutagenic and carcinogenic effect detected in rodents negate its usage on pregnant women thus limiting treatment possibilities. Another factor is that pregnant women are more reluctant to take prescribed medication in full dose if at all, this necessitate the incorporation of routine screening for sexually transmitted infection in antenatal care.

Table 4, shows the age specific distribution of *Trichomonas vaginalis* infection among the women in this study. Trichomoniasis is more prevalent among those aged 20-29 years 6 (6%) followed by <20 years age group 2 (4%) while those aged 30-39 years had the lease prevalence rate 1(2%). No infection was recorded among those aged >40. *T. vaginalis* infection is age dependant ( $p < 0.05$ ). The result of this study is in agreement with generally observed fact that the incidence of sexually transmitted disease (STDs) including Trichomoniasis, by the number of cases treated each year, is highest among the 15-30 years age group (WHO, 2007). This age group reported by other researchers, Jatau, et al. (2006) and Okonko et al. (2012), were documented to be persons with the greatest sexual activity and that incidences decreases with age.

Educational status of *Trichomonas vaginalis* infection among the women presented in table 5 showed that. women with primary school certificate has the highest rate of infection 6(16.2%), followed by those with no educational status (Illiterate) 1 (4%),

women with higher education had 1 (2.3%) and women with secondary certificate had 1(1%) while no infection with *T. vaginalis* was recorded among women with Qur'anic education. However, the result of this study shows no relationship in educational status and infection with *T. vaginalis*. Rather it depends on individuals level of both educational, and environmental hygiene.

#### Conclusion and recommendations

This study has confirmed the existance of *Trichomonas vaginalis* infection among women in Birnin Kebbi, Kebbi State. Low prevalence recorded of 4.1%, suggest the need for control of Trichomoniasis. This can be best accomplished by public health programmes through persistent efforts to educate people on the need to improve on their personal hygiene, screen, diagnose, treat patients and sexual partners and follow up monitory of the infected individuals within communities.

1. Certain factors such as poor personal hygiene, multiple sex partners, low socio-economic status and under development are also associated with high incidence of infection which should be avoid.
2. Public health programmes should be organized to educate people on the need to improve on their personal hygiene, screen, diagnose, treat patients and sexual partners and follow up on the high risk individuals within communities.
3. Patients infected should avoid sex until drug therapy is completed and all symptoms have disappeared. Treatment of the patients' partner is crucial to avoid re-infection.

It is also important for the individuals to provide their physicians with all the facts that they think can lead to a better diagnose or treatment, especially for patients seeking medical help for a reoccurring infection.

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