Trichomoniasis, A Sexually Transmitted Parasitic Disease in Women Attending a Tertiary Hospital in Southeastern Nigeria

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Abstract

Trichomoniasis is the most prevalence sexually transmitted parasitic disease in the world. A prospective study was conducted to determine the prevalence of *Trichomonas vaginalis* infection among women attending Nnamdi Azikiwe University Teaching Hospital Nnewi, Nigeria. High vaginal swabs were collected from 286 women who were in their child bearing period (18-45 years) and examined by direct wet microscopy. The overall prevalence of *Trichomonas vaginalis* infection was 3.8%. The highest prevalence was observed among the 26-33-year age group (5.0%) and no infection was seen among women aged 41-45-year-old. The prevalence rate was 3.9% among married and 3.7% among unmarried women (P>0.05). *Trichomonas vaginalis* infection was more in women who had multiple sex partners (4.5%) than those who maintained only one partner (1.5%) (P<0.05). Women whose income corresponded to the national minimum wage was significantly infected with *Trichomonas vaginalis* (5.5%) than the women who earned higher (1.65) (P<0.05). Occurrence of *Trichomonas vaginalis* infection among non-pregnant women was 4.3% and 3.3% in pregnant ones (P>0.05). Trichomoniasis was highest at the first trimester of pregnancy (5.0%) and no infection was observed at the third trimester. Prevalence of *Trichomonas vaginalis* infection in Nnewi is low. Women with low incomes and multiple sex partners were likely to have Trichomoniasis.

Keywords: Nigeria; Sexually transmitted parasitic disease; Trichomoniasis; Women; Tertiary hospital

Introduction

Sexually transmitted parasite diseases (STPD) are infectious diseases that are transmitted through unprotected sex which could potentially predispose men and women to different reproductive health issues [1]. Trichomoniasis, caused by *Trichomonas vaginalis* is the most prevalent sexually transmitted parasitic disease in the world with an annual incidence of 276.4 million cases, making it more prevalent than gonorrhea and Chlamydia [2,3].

Its symptoms are commonly seen in women than in men [4]. In women, the symptoms may include frothy-greenish foul-smelling vaginal discharge, vullo-vaginal irritation, postcoital bleeding, frequency of micturition, dysuria and lower abdominal pains [5,6]. *Trichomonas vaginalis* is mainly transmitted through sexual contact but could be contracted through sharing of wet towels and under wears with infected individuals [7].

Incidence rates can vary according to several factors, such as older age, sexual activity, multiple sexual partners, co-infection with other sexually transmitted disease, methods of diagnosis, poor personal hygiene and socio-economic status [5,8]. Trichomoniasis have been diagnosed through various methods such as *Trichomonas vaginalis* culture, direct microscopic examination of the vaginal fluid, cytopathology or a combination of these methods [9]. In Nigeria, despite the endemity of parasite diseases, only Trichomoniasis is sexually transmitted. Studies in Nigeria show that prevalence of Trichomoniasis across the country range from...
0-51.8% [1]. Majority of the studies were carried out on pregnant in different geo-political zones. Due to its high disease burden, we aimed to determine the prevalence Trichomoniasis in women attending clinics in a Nigeria hospital.

Materials and Methods

Nnamdi Azikiwe University Teaching Hospital (NAUTH), located in the urban area of Nnewi, Anambra South local council, Nigeria is a reference centre for health care in Anambra State. It has many specialist clinicians in Obstetrics and Gynecology.

Types of Study: A cross-sectional study was conducted to analyze the prevalence of *Trichomonas vaginalis* among women treated at Obstetrics and Gynecology (O&G) Department of NAUTH, Nnewi.

Study participants: A total of 286 women in their child bearing period (18-45 years) agreed to participate in the study. These women complained of vaginal discharge with itching, burning sensation or both and other gynecological manifestations suggesting Trichomoniasis.

Methods: High vaginal swab (HVS) was collected from each participant using the method described [10]. A vaginal fluid was collected using a sterile swab stick (Evepon, Nigeria) aided by sterile speculum. A wet mount preparation was examined and *Trichomonas vaginalis* identified by its characteristics wobbling and rotation motion.

Statistical analysis: Statistical analyses for data obtained were performed using chi-square test and descriptive statistics. A p-value of <0.05 was considered significant

Ethical approval: The Ethics and Research Committee of the Hospital approved this study. Informed consent was sought from participants. Patients voluntarily consented to participate and agreed to fill a structured self-administered questionnaire.

Results

A total of 11 (3.8%) women were infected by *Trichomonas vaginalis* infection. Of these, the highest prevalence was observed among the 26-33-year age group (5.0%). No infection was observed among women aged between 41-45 years. Regarding their marital status, prevalence of *Trichomonas vaginalis* infection was 3.9% in married women and 3.7% in unmarried women. Marital status was not significantly associated with Trichomoniasis (P>0.05) (Table 1). Women who had multiple sex partners were more infected (4.5%) than those who maintained only one partner (1.5%) (P<0.05). As presented in Table 1, women whose monthly income corresponded to the national minimum wage were more likely to be infected with *Trichomonas vaginalis* (5.5%) than women who earned a higher income (1.6%) (P<0.05).

Occurrence of *Trichomonas vaginalis* infection among non-pregnant and pregnant women was similar; 4.3% vs. 3.3% (P>0.05). According to their trimester of pregnancy, Trichomoniasis was observed highest at the first trimester (5.0%) and none at the third trimester as presented in Table 2.

### Table 1: Sociodemographic characteristics of women infected by *Trichomonas vaginalis* at NAUTH, Nnewi.

<table>
<thead>
<tr>
<th>Status of women</th>
<th>No. examined</th>
<th><em>Trichomonas vaginalis</em> detected (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non- pregnant</td>
<td>163</td>
<td>7 (4.3)</td>
</tr>
<tr>
<td>Pregnant</td>
<td>-</td>
<td>123</td>
</tr>
<tr>
<td>Gestation age of Pregnancy</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>First trimester</td>
<td>60</td>
<td>3 (5.0)</td>
</tr>
<tr>
<td>Second trimester</td>
<td>48</td>
<td>1 (2.1)</td>
</tr>
<tr>
<td>Third trimester</td>
<td>15</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

### Table 2: Distribution of Trichomoniasis among women attending hospital at NAUTH, Nnewi.

Discussion

The *Trichomonas vaginalis* infection rate of 3.8% was observed in our study. This is similar to 3.3% reported in Lagos, Nigeria [11] and 3.68% in Brazil [12]. Our finding however, is lower than 21.5% and 15.0% respectively reported in Nigeria and 34.0% in Kenya [11,13,14]. These rates were calculated based on direct examination of fresh preparation of vaginal fluid. The
improvement in this current study could be attributed to the practice of good personal hygiene and adherence to consistent healthy living of these women as instructed at every antenatal clinic and advised at consultations in the Hospital.

It has been suggested that *Trichomonas vaginalis* infection is age-tied [15]. The prevalence of *Trichomonas vaginalis* infection was highest in women aged between 26 years and 33 years (5.1%). This age group has been associated with higher sexual activity. There is a general consensus that the prevalence of sexually transmitted disease including Trichomoniasis is the highest among 11-45-year age group [16-18].

In our study, the prevalence of Trichomoniasis among pregnant women (3.3%) was similar to that observed in non-pregnant women (4.3%). This result matches the study conducted in Brazil [9] and Onitsha [19]. This high prevalence of Trichomoniasis among pregnant women compared with non-pregnant women might be explained by hormonal changes and/or the increase in vaginal pH that occurs during pregnancy [20]. This increase facilitates protozoan colonization and it has been established that alkaline pH above 4.5 is associated with the presence of Trichomoniasis [21].

According to their marital status, married women had an infection rate of 3.9% which is similar to 3.7% in unmarried women. This result agrees with previous findings [18]. Marital status was therefore not significantly related to Trichomoniasis. Unmarried women are believed to be unattached and thus free to indulge in more sexual activities [22] but, on the contrary, our study did not show that pattern.

Trichomoniasis was seen most among women in their first trimester of pregnancy [5.0%]. Gestational age has been observed to have a significant influence on the prevalence of Trichomoniasis, with those in the first trimester presenting with the highest prevalence followed by the second trimester [22-23]. The frequency of sexual intercourse decrease as pregnancy advances [22]. This could explain why no *Trichomonas vaginalis* infection was recorded among women in the third trimester of pregnancy. This is similar to a previous result [24].

Women whose income was below the national minimum wage presented a significantly higher *Trichomonas vaginalis* infection rate (5.5%). This is in line with previous findings [8] and implies a socioeconomic fragility that represents a risk factor for Trichomoniasis [9]. Trichomoniasis was observed more in women who have multiple sex partners. Similarly, other workers had recorded higher prevalence among persons with multiple sex partners and other venerable diseases [19,25].

**Conclusion**

The overall prevalence of *Trichomonas vaginalis* infection was 3.8%. Participants with low income and multiple sex partners were mostly infected with Trichomoniasis. Marital and pregnancy status of the women at Nnewi were not associate with Trichomoniasis.

**References**


