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ORIGINAL ARTICLE

Prevalence and risk factors of trichomoniasis among women in Tabriz

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ABSTRACT

Background: We investigated frequency of trichomoniasis among non-pregnant women in health centers of Tabriz, Iran.

Patients and methods: 1000 non-pregnant women aged 15-49 in health centers of Tabriz, Iran were examined by wet smears and Diamond culture methods for Trichomonas vaginalis, during the period of March to September 2005.

Results: Among 1000 specimens 92 cases were revealed to be positive for Trichomonas vaginalis by culture method and 31 cases by wet smear method. There was no significant difference in the isolation rate of trichomoniasis in women according to age, occupation, husband education level, abortion, parity, menstrual status and contraception use. The difference in the isolation rate of trichomoniasis in women with marriage age of more than 18 years (10.9%) and in women with marriage age of less than 18 years (8%) was statistically significant. Infection rates in different education levels did not show statistically significant difference.

Conclusion: Trichomonas vaginalis is one of the important diseases with a high prevalence in women in Tabriz. Eradication of this disease is possible with extensive public health education and administration of specific therapeutic agents to the infected patients.

Keywords: *Trichomoniasis, Prevalence, Iran.*
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INTRODUCTION

Lower genital tract related complaints among women account for majority of outpatient women health care visits in the United States (1). Trichomonas vaginalis is a protozoan parasite transmitted almost exclusively through vaginal intercourse. It is the most common non viral sexually transmitted disease (STD) in humans (2-4). Infection with the organism can cause vaginitis in women and urethritis in men (5). Trichomoniasis also impacts upon birth outcomes and is a co-factor in human immunodeficiency virus (HIV) transmission and acquisition (6-8). Approximately 180 million women world wide and 3 million women in the United States are infected every year by T.vaginalis. Of note, up to 50% of infection may be asymptomatic (4,9,10). Diagnosis and elimination of the cause of the problem rely heavily on an accurate and thorough history and physical

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examination (11). Despite its limited sensitivity (1, 7), direct microscopic examination of the vaginal fluid remains the most widely utilized diagnostic test for this infection. Culture of the organism using vaginal specimens is the current "gold standard" (1,4,7,10). The purpose of this study was to describe the prevalence and common risk factors, signs and symptoms of trichomoniasis in a randomly selected population of women in Tabriz.

PATIENTS and METHODS

This was a cross-sectional study that 1000 non pregnant women between the ages of 15 and 49 years who had ≥1 week untreated genital complaints were enrolled under a research protocol. Then written and verbal informed, consent was obtained. Women were enrolled at 3 sites. Inclusion criteria for enrollment included the presence of vaginal discharge, abnormal vaginal odor, vaginal itching, or lower genital tract burning sensation. An extensive questionnaire on current and past medical and personal, general, obstetric, sexual and contraceptive history was completed by each patient. Each woman also underwent a speculum examination that included direct observation for vaginal inflammation, cervicitis and evaluation of vaginal secretions for color, viscosity. Among discharges, odor was also assessed before and after the addition of 10% potassium hydroxide (KOH). During examination, vaginal specimens were collected using sterile cotton swabs. One of these was used to inoculate culture medium (Diamonds media) for diagnosing T.vaginalis. The tube was then incubated at 37°C for 8 days and observed microscopically every 2 days for the presence of motile trichomonads.

The second swab was used to direct observation of a wet mount to diagnose T.vaginalis by observing motile trichomonads. Data were registered in a database and analyzed with SPSS statistical software using Chi-square and Fisher's exact test if needed.

RESULTS

A total of 1000 women were included in the study. The mean age of the patients was 31.6±6.1 years. The overall infection frequency diagnosed by culture method (the gold standard) among the 1000 women was 92 (9.2%) and the frequency of trichomoniasis by wet mount method was 31 (3.1%).

Symptoms varied among the 1000 women. The most frequent reported symptoms included malodor, low abdominal pain, itching, dysparonia, burning sensation and dysuria (Table 1). The infection rate of T.vaginalis among women involved in this study did not show any statistically significant differences with age ($p>0.05$). The high prevalence rate of infection (10.3%) was found in women of less than 20 years old group. The women with the marriage age over the 18 years showed the highest infection rate (10.9%). There was a significant difference in relation to the age of marriage ($p<0.05$).

Table 1. Frequency of symptoms in Trichomonas vaginalis infected patients

Patient complaint	Number (%)
Malodor	526 (52.6)
Dysuria	230 (23)
Urinal signs	180 (18)
Itching	360 (36)
Itching during intercourse*	231 (23.5)
Low abdominal pain	458 (45.8)
Burning during intercourse*	268 (27.1)
Dysparonia*	272 (27.6)

* 16 women were not married and not included.

The infection rate in housewives (9.2%) was not significantly higher than the rate in employed women. Also overall prevalence of infection in women with moderate education level (under diploma) was 13.3% and the infection rate in women with high education level (academic education) was 6%. There were significant differences between low, moderate and high education levels, but among husband education

levels there were not statistically significant differences.

Of the 741 women with negative history of abortion 68 (9.2%) were infected with T.vaginalis, while 24 (9.3%) of the 259 women with an abortion previously, had the infection. The difference between these two groups was not statistically significant ($p>0.05$). Furthermore, there was no statistically significant difference related to sexual intercourse ($p>0.05$), although T.vaginalis infection was more common in women with sexual intercourses more than 6 times per week.

T.vaginalis infection was more common among women using depomedroxy progesterone acetate (16.7%) and intrauterine devices (11.6%), than among those using oral contraceptive (6%). The difference between these groups was not statistically significant (($p>0.05$).

DISCUSSION

The prevalence estimates of trichomoniasis vary between populations studied, but range from 5-74% in women, with the highest rates reported in either sex from STI clinics and in other high risk populations (6,12,13).

The results of this study have shown that among women attending a health center in Tabriz, prevalence of trichomoniasis was 9.2% by culture and 3.1% by the wet mount method. Different studies in Iran showed that prevalence rate varied widely from 0.5 to 42% in different provinces due to the unreliability of detection methods (14-20). According to the minimum concentration of organisms required for a positive result, culture is more sensitive than wet mount preparation (21). Majority of the surveys revealed that the culture method was a useful tool for accurate diagnosis of trichomoniasis (14,16,18,22-24).

This presents an important public health problem, which should be drawn to the attention of the public as well as health authorities.

The available data suggest that reproductive hormone levels may be partly responsible for higher prevalence of trichomoniasis in older women (25). In this study higher rate of isolation was found in women less than 20 years old. This is probably related to the higher level of sexual activity in these women and maybe also due to the transmission from their husbands. Other studies reported the same results (15,17,19,20) except one study in Bushehr which showed high prevalence rate in females more than 45 years old (26).

We found no statistically significant difference in the frequency of trichomoniasis in relation to occupation and level of husband education. Similar lack of significance was also reported in other studies (27,28).

It is concluded that Trichomonas vaginalis in women in Tabriz is one of the important diseases with a high prevalence, and that the eradication of this disease is possible with extensive public health education and administration of specific therapeutic agents to the infected patients.

The question remains about the prevalence rate of infection in men in Tabriz. A study of epidemiology and risk factors of trichomoniasis in men can clarify this question.

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