

Epidemiological Study of *Trichomonas Vaginalis* in Married females

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Summary

The aim of this study was to identify the main risk factors with *Trichomonas vaginalis* infection in married women that have vaginal discharge. The study include (250) female who attended Al-Yarmouk Teaching Hospital (Gynecological Clinics), through the period from February 2010 to July 2010. Patients female were subjected for a special questionnaire sheet. The study has found that (65) females were infected with this parasite from total (250), who were complaining from vaginal discharge with infection rate 26%. Higher infection rate was recorded between pregnant female was 17.2% while non-pregnant women 8.8%. The main age group of infected women concentrated in (20-29 years) in which rate were 12.83% and 11.76% in pregnant and non-pregnant women respectively. According to educational level and socio-economic status, the study recorded higher percentage 50.76% between illiterate women and with low socio-economic status 63.07%. The highest infection with *Trichomonas vaginalis* obtained from women with white to gray discharge 58.46% and with bad odor 81.53%. Depending on residency, in rural residence the high percentage of infection were recorded 63.07% while comparing with urban 36.93%. Considering to contraceptive types which used by women 47.69% for IUDs, followed by 32.31% for contraceptive pills and low percentage for condom 20%.

دراسة وبائية لداء المشعرات المهبلية في النساء المتزوجات

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الخلاصة

تهدف الدراسة إلى معرفة العوامل الخطرة المتعلقة بالإصابة بداء المشعرات المهبلية في النساء اللواتي يعانين إفرزات مهبلية، شملت الدراسة (250) امرأة راجعت العيادات الاستشارية النسائية في مستشفى اليرموك التعليمي للفترة من شباط 2010 ولغاية تموز 2010. تم الحصول على المعلومات عن طريق استمارة استبيان. وقد أظهرت هذه الدراسة إن (65) امرأة كانت مصابة بهذا الطفيلي من بين (250) امرأة لديهن إفرزات مهبلية وكانت نسبة الإصابة 26% وسجلت اعلي نسبة الإصابة في النساء الحوامل 17.2% مقارنة في النساء غير الحوامل 8.8%، وكانت الإصابة تتركز في النساء عند سن الإنجاب بعمر 20-29 سنة والتي كانت نسبتها 12.83% في النساء الحوامل و 11.76% في النساء غير الحوامل. وطبقا إلى المستوى التعليمي والثقافي، ظهرت النسبة الأعلى 50.76% لدى النساء غير المتعلمات واللاتي يعانين من وضع اقتصادي واجتماعي واطئ 63.07%. تبين وجود بعض العلامات السريرية على النساء المصابات ومنها إفرزات مهبلية ذات لون ابيض مائل إلى الرمادي 58.46% وذو الرائحة الكريهة 81.53%. إما بالنسبة إلى مناطق السكن، ففي المناطق الريفية كانت نسبة الإصابة 63.07% مقارنة مع سكان المدينة 36.93% وكانت اعلي نسبة إصابة بين النساء اللاتي يستخدمن اللولب الرحمي 47.69% وتليها النساء المستخدمات لحبوب منع الحمل 32.31% والنسبة الأقل كانت من نصيب النساء المستخدمات للواقى وهي 20%.

Introduction

Trichomoniasis is a common sexually transmitted disease (STD) of the urogenital tract; caused by *Trichomonas vaginalis* species, is an anaerobic, flagellated protozoan, a form of microorganism (1). *Trichomonas vaginalis* is one of three types of vaginal infection, also called "trich," (2). Sometimes antibiotics, birth control pills, hormones, and douching can cause vaginal irritation and lead to infection, other causes may be tight-fitting clothes, intercourse without enough lubrication, child birth, or injury's on the vagina (3). Vaginal discharge is the most common compliant associated with vaginal trichomoniasis, the discharge is frequently perfuse associated with burning, itching, and yellowish green or gray color, the discharge is thin foamy and has a strong odor (4). The organism grows best at 35– 37°C under anaerobic conditions, the optimal PH for growth in vitro (5.5 – 6.0) (5). *Trichomonas*

vaginalis transmitted by sexual intercourse, contaminated towels (6). Infection with *T. vaginalis* can be a marker for high-risk sexual behavior, and frequently occurs concomitantly with other sexually transmitted infection, including gonorrhea and Chlamydia (7). *Trichomoniasis* is associated with incident herpes simplex virus (HSV)-2 infection (8), and with genital HSV-2 shedding in infected female (9).

As with other STD, *Trichomoniasis* in the male or female genital tract is associated with increased sexual transmission of HIV (10,11). Coinfection with *T. vaginalis* and HIV may increase the infectiousness of both organisms (12). The rates of infection between males and females are the same with female showing signs and symptoms, while in male infection is frequently asymptomatic (13, 14). Transmission takes place directly because the trophozoite does not have a cyst (15,16).

Materials and Methods

Vaginal swabs were taken from 250 married females attending the department of Gynecological Clinics in Al-Yarmouk Teaching Hospital with signs of vaginal discharge; they were examined during the period from February 2010 – to July 2010. Cross-sectional study was done for 250 smears diagnosed and examined microscopically at (x40).

Information from each female were taken by using special questionnaire sheet contains many data (Age, Occupation, Education level, pregnant or not, socio-economic status, Residence, odor and color of discharge, type of contraceptives, ...).

A total of 250 smears samples were examined under the microscope at x40 ; *T.vaginalis* can be visualized in fixed vaginal, cervical and urin sediment smears stained using two staining methods including Gram and Giemsa stain ,after staining examineind under microscope and noticed motile protozoa (15,16).

Statistical analysis was done by using Chi-square and relationship (17).

Results

Table 1 showed that 65 (26%) were infected with *Trichomonas Vaginalis*, 148 pregnant females 43 (17.2%) were showed positive results of *T. Vaginalis* infection , while 22 (8.8%) out of (102) of non-pregnant females were infected with *T. Vaginalis*.

Table (1): Distribution of *Trichomonas vaginalis* among pregnant and non-pregnant females.

Cases	Number	Infected females	
		No.	%
Pregnant	148	43	17.2
Non-pregnant	102	22	8.8
Total	250	65	26

Considering the age groups and it's relation with the distribution of the infection by *T. Vaginalis*, the results have shown that the infection among age group (20-29) years was higher 12.83% in pregnant women than in non-pregnant women 11.76%, then the age group (30-39) years 7.43% in pregnant women and 6.86% in non-pregnant women, then the incidence decreased with other age groups.. , as clearly observed in table 2.

Table (2): Relation between age group and infection with *T. Vaginalis*.

Age group	No. of pregnant	No.	%	No. of non-pregnant	No.	%
14-19	24	7	4.72	16	3	2.94
20-29	85	19	12.83	62	12	11.76
30-39	22	11	7.43	15	7	6.86
40-49	7	2	1.35	7	3	2.94
>50	0	0	00.00	2	0	00.00
Total	148	40	26.33	102	25	24.5

Results in table 3 showed that 53(81.53%) of patients with *Trichomoniasis* complain of bad odor vaginal discharge, while vaginal discharge of 12 (18.47%) of patients were odorless .

Table (3): Relation between vaginal discharge odor and *Trichomoniasis* infection.

Discharge odor	Infected women	
	No.	%
Bad odor	53	81.53
Odorless	12	18.47
Total	65	100

Regarding the differences in color of vaginal discharge, 38 (58.46%) of the patient had frothy discharge white to gray, while 18 (27.69%) of patients had Yellow to green color and the rest 9 (13.85%) had bloody discharge as expressed in table 4.

Table (4): Relation between vaginal discharge color and *Trichomoniasis* infection.

Discharge color	Infected women	
	No.	%
White to gray	38	58.46
Yellow to green	18	27.69
Bloody	9	13.85
Total	65	100

In this study, depending on the correlation between socio-economic status and education level of females and the infection with *T. Vaginalis*, we observed that the highest rate of infection was found among ill iterated females 33 (50.76%), followed by the low standard of living 41(63.07%), as shown in tables (5 , 6).

Table (5): relation between *T. Vaginalis* infection and education level.

Education Level of females	Infected females	
	No.	%
Ill iterated	33	50.76
Primary level	9	13.84
Secondary level	15	23.07
Universities	8	12.33
Total	65	100.00

Table (6): Relation between *T. Vaginalis* infection and socio-economic status.

Socio-economic status	Infected females	
	No.	%
Low	41	63.07
Moderate	9	13.84
High	15	23.09

Table 7 showed the relation between residency and Trichomoniasis infection; the high incidence of *T. Vaginalis* infection was found among rural females 41 (63.07%), followed by urbanized females 24 (36.93%). While the relation between different types of contraceptives uses and *T. Vaginalis* infection was clearly shown in table (8).

Table (7): Relation between Residency and Trichomoniasis disease.

Residency	Infected females	
	No.	%
Rural	41	63.07
Urban	24	36.93
Total	65	100.00

Table (8): Relation between different contraceptive methods and Trichomoniasis disease.

Contraceptives Types	Infected females	
	No.	%
Contraceptive pills	21	32.31
Condom	13	20.00
IUDs	31	47.69
Total	65	100.00

Discussion

In the present study, out of 250 females, 65 (26%) were found to be infected with *T. Vaginalis*. This indicates that there are a considerable number of females in this society harboring the parasite, acting as the main reservoir and transmitter to other people and it is representing a real problem that should be not neglected and must be received attention from health authorities. The current study showed that 65 (26%) of females were infected with *T. vaginalis*, this result is consistent with the other Iraqi studies in Mosul (25.86%) as reported by (18), and Baghdad (22.6%) as reported by (19).

Considering to the pregnant and non pregnant females, infection with *T. vaginalis*, were 43 (17.2%) and 22 (8.8%) respectively. This result is compatible with studies reported by (19, 20) 18.3 % and 17.5% in pregnant females respectively, while 7.4% and 8.6% in non pregnant respectively. The age groups of our patients ranged between (14->50) years and the peak of incidence was (12.83%) at the age of (20-29) years in pregnant females, while it was (11.76%) in non pregnant females. This result was agreed with study reported by (21), where the highest incidence could be occurred at the age group (21-40) years, this may be related to multi pregnancy and presence of suitable environment for growth of *T. vaginalis* and its survival. However our result was disagreed with study expressed by (22), where the highest incidence (12.6%) was recorded at the age (14-40) years.

This study have shown that the bad odor was distinct in 53 women (81.53%), while 12 (18.47%)were odorless. Furthermore, the high percentage recorded in female with the frothy

discharge (white to gray) were 38(58.46%). This result agreed with the study reported by Al-Samarraie in Baghdad (23), who found that the highest percentage of Trichomoniasis in pregnant and non pregnant females with malodor and white to gray discharge was 65.7% and 52.2% respectively. The explanation of the bad odor may be due to the metabolic by products of anaerobic *T. vaginalis* and other anaerobies that increased the concentration during trichomoniasis to which may contribute to the bad odor discharge (19).

According to educational level and socio economic status, the result showed that about more than half number were alliterate females 50.76% and with low socio economic status 63.07%. Accordingly these results consistent with study reported by (24,25) in upper Egypt. The main causes to infection with this parasite are personal hygienic habit and absence of the health education about this disease may lead to increase cases of trichomoniasis among illiterate women than in educated women(24).

The peak of incidence of disease in patients who were living in rural area was 63.07%, and 36.93% in urbanized area, this may be attributed to loss of clinical services, personal and environmental hygiene. Considering to the using of different contraceptive methods, the highest infected rate with *T. vaginalis* were 31 (47.69%) in females using intra uterine devices (IUDs), while 21 (32.31%) among women on oral contraceptive pills and the lower rate 13 (20%) related to using condom. This may be to the fact oral contraceptives provide a favorable PH and adding the necessary glycogen for nourishment. Besides progestin component of the pills will increase cervical mucosal thickness and make it hostile to spermatozoa and pathogens. Condom barrier prevent various microorganism that is expressed the lowest rate of infection (22, 25).

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