Epidemiological Study on *Trichomonas vaginalis* Infection In Erbil Province

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Abstract

This epidemiological study was performed from September 2005 till the end of April 2006 for investigation the prevalence of *Trichomonas vaginalis* infection in Erbil province. The total examined specimens were 700, 535 females by vaginal swabs and 165 males by seminal fluid and urine specimens.

Results revealed that the infection rate was 15.7% in females, whilst in males were 4.84%.

The highest rates of infection were recorded in December (32.26%) and October (9.52%) in both sexes.

The infection rates were differed among the studied area of Erbil province (Erbil center (14.99%), Kwesingaq (13.33%), Qushtaba (12.50%), Shaklawa (10.99%) and Suran (8.15%)) . Also the study showed that the highest percentage (20.21%) of infection by *T.vaginalis* was in the age group 25-34 years for both sexes .

For the first time in Iraq and Kurdistan we diagnosed the parasite in seminal fluid through the direct method among men.

Introduction

Protozoa parasites are important group of disease causes which infect human and cause a serious problems , some of these parasites transmitted among humans by sexual contact causing sexually transmitted diseases , one of these parasites is *Trichomonas vaginalis* .

The term (STDs) was suggested and applied in the recent years instead of the term (venereal disease) because the last included mainly two types of discuses which are (Gonorrhoea and syphilis) while (STDs) included all diseases that may be caused by Fungi , bacteria and viruses(Bannister *et al*., 2000).

T. vaginalis distribution is cosmopolitan as pointed out WHO; that there is over than 170 million patient with *Trichomonas* and about 8 million of those in North America(WHO,1995).

In Arab countries the infections were high in Egypt(EL. Rifale *et al*.,1983). While in Iraq the studies showed that presence of infections in Baghdad, Erbil , Najaf, Muosle , Teqrite , Diwanyia , Kerkuk, Basrah and Ramadi, in different ratios (Al-Saadi,2003; Al-Zaidy,2004; Draogha,2005 and Zubaidy,2005;).

Infection with *T. vaginalis* represent of a danger on the Individuals and the community especially females , who usually have the vagina and may invade the genital glands such as skeins gland and Bartholins gland (Beaver & Jung, 1985). Infected women usually suffering from itching & burning if vagina with over secretions of white or yellow riginal with malodorous, vulvae erethema, dyspareunia and dysuria (George,2001). Some time cause infertility (El-Shazly *et. al*.,2001). *T. vaginali*s may be a factor that increase the risk of infection with HIV(Gregorson *et. al*. ,2001).

In males this parasite usually infect the genital tract especially urethra and prostate in ratio of 40% of symptomatic men (Bearer & Jung ; 1985), also epididymus , testes, seminal vesicles , bladder and seminal fluid, that's make leaf to infertility, (El- soud *et. al*., 1998).

Due to the little information about this parasite in Kurdstan are especially Erbil province, the aim of this research was came up.

Materials and Methods

Epidemiological study included a complete survey for the distribution of *T.vaginalis* parasite in Erbil province (Erbil center, Kwesingeq; Qushtaba; Shaklawa and Suran), samples were done at the :-

1- Health centers of the Erbil province especially mala – findi.
2- I.V. F center in Erbil.
3- Taq – Taq health center of Kwesingeq.
4- Some civial heath laboratories especially saya.
5- Hospital Laboratory of Razgari teaching hospital for preparation of culture media.
6- Parasites laboratory in technical institute of Shaklawa clinical pathology Dept.

Collection Of Specimens

Samples were collected from September 2005 to April of 2006. the total collected samples of both sexes and ages groups were 700 (535 of females and 165 of males). These samples were collected randomly by different techniques; vaginal swabs, seminal fluid and urine samples.

- **Specimens of vaginal swabs:**

Samples were collected by Gynecologeists by mean of sterilized speculum with swabs. Then with drown in clean glass test tubes with addition of 2 of normal saline and pH was adjusted to 7.2 by pH meter as preserratie condition for the parasite.(Kharoofa,1999) and for long period of time until inspection.

Specimens were tested by shaking of test tubes well and 1-3 drops were loaded on clean slide, after covering with cover- slide, specimens were examined under the lower power of light microscope (10X) and then (40X) for identification of parasite movement (Jerky movement). (Honigberg & king, 1964).

- Specimens Of Seminal Fluid :-

Samples were tested at infertility center and clinical pathology laboratory , each patient was supplied with clean dry condoner of 20 ml in volume with suitable opening size (5< cm).

In an attempt to collect seminal fluid samples, samples were collected by masturbation ; after incubation of the seminal fluid in incubator for 30 mints for liquitications one drop of sample was loaded on slide and covered with cover slide and then examined under light microscope by lower power 10X and then 40X for identification of the parasite *T. vaginalis* with form a pseudo cyst (Barnoty,1993).

- **Specimens of urine**

Urine samples were collected in a clean and sterilized glass both and then center fudged by ultra centrifugation 1500 rpm/min for 5 mints , a drop of the sediment was examined in microscopy to identify the parasite of parasite by distinguish its movement and shape(Frances and marshall,2004).

Results and Discussion

1- The infection of *T. vaginalis* according to sex.

The total examined specimens were 700, 535 females and 165 males. This study showed that the total infected cases were (92) and the percentage of total infection was 13.4% for both sexes, the females infection(84) and percentage infections15.7%. While in males only 8 cases and percentage 4.84% (Table 1).

The results in current study is agreed to many previous studies in Iraq as, (Mahdi,1996) in Al- Basrah (Kadir,1996) in Takrit, (Al-Najar, 1998;Al-Mugdadi,1999) in Baghdad(Kharoofa,1999) in Al-Mosual and (Al-zaidy ,2004) in Al-Najaf.

The percentage of infection in male low in this study (4.84%) this belong to different of procedure of examination the specimens of seminal fluid at urine, and not used urethral discharge. The present result were similar to the result of (Anosike *et. al*., 1993) in Nigeria.

Table (1) The infection percentage of *T.vaginalis* according to sex in Erbil province

Total No. of collected cases	Females			Males			Total no. infection	Percentage (%)
	Total no.	Infections no.	Percentage (%)	Total no	Infection no.	Percentage (%)		
700	535	84	15.7	165	8	4.85	92	13.14

2- The infection of *T. vaginalis* according to studied months

Table(2) illustrate the ratios of the infections with *T. vaginalis* for both sexes during 8 months(September 2005 – April 2006). It seems that there was a variation in the infection rates according to months. The high ratio was recorded in males during November 2005(9.52%) while the lowest ratio (3.57 %) was in April 2006.While there was no infection recorded in January and march 2006.

In females, the highest ratio was in December 2005(32.26%) and the lowest was in January 2006(9.3%) and there was no infections in April 2006.

Infection ratio of *T .vaginalis* may be fluctuated and unstable because the ratio of infection correlated with many factors some of which may belong to the co-infections of the host with other microorganism and some of may belong to the ecological conditions such as temperature and moisture (Nash & Weller,1998).

Table(2) :- Infection Percentage of *T. vaginalis* according to studied months

Month	No. Of Samples Inspected (Males)	No. Infection (Males)	Percentage %	No. Of Samples Inspected (Females)	No. Infection (Females)	Percentage %	Total No. Infection
September 2005	**24**	**1**	**4.17**	**92**	**12**	**13.04**	**13**
October 2005	**24**	**1**	**4.17**	**60**	**9**	**15.00**	**10**
November 2005	**21**	**2**	**9.52**	**46**	**6**	**13.04**	**8**
December 2005	**24**	**1**	**4.17**	**31**	**10**	**32.26**	**11**
January 2006	**4**	**0**	**0.00**	**43**	**4**	**9.30**	**4**
February 2006	**11**	**1**	**9.09**	**133**	**28**	**21.05**	**29**
March 2006	**1**	**0**	**0.00**	**120**	**15**	**12.50**	**15**
April 2006	**56**	**2**	**3.57**	**10**	**0**	**0.00**	**2**
Total	**165**	**8**	**4.84**	**535**	**84**	**15.70**	**92**

3- Infectivity with the parasite according to geographic area

Table(3) explain the occurrence of infection percentage in different locations of Erbil province which were 14.99%,13.33%,12.50%,10.99% and 8.51% in (Erbil center, Kwesingeq , Qushtaba , Shaklawa and Suran) respectively.

The result in this study different among these locations of Erbil, this may be due to the similarity of ecological conditions such as temperature, moisture and the similarity of social and economic level.

While the presence of the differences between Erbil and Suran may be due to the inspected samples in Erbil were much more of females by vaginal swabs that tend to elevation of infection ratio (Kharoofa,1999).

Results of this work is come in conformity with the results of (Al-Zaidy,2004) in Najaf, which pointed that there is no significant differences among the women from city and the country side. In this work, most of the specimens which were tested belong to women lives in country side areas especially in Shaklawa and Suran, also this is similar to the results obtained by Al-Zubaidy,2005) in Mosual which recorded a differences between city and country side women's.

Table (3):- Percentage of Infection of *T.vaginalis* according to geographic area

Geographic area	No. of Samples	No. of Infection	Percentage %
Erbil	367	55	14.99
Kwesingeq	60	8	13.33
Qushtaba	88	11	12.50
Sheklawa	91	10	10.99
Suran	94	8	8.51
Total	700	92	13.14

4- **Infection of parasite and its relation with age groups**

Table(4) explain that the highest infection ration by parasite was registered in females at age (25-34)years old (20.21%), while at (13-24) ,(35-44) and ≤ 45 years old (18.03,13.7 and 7.79)%. The results of this study were agreed with registered by Khamees (2003) in Najaf. The highest percentage infection ratio was occurred at age group (25.34) old , in which it agreed with Al-Zaidy (2004) in Najaf. Al- Zaidy study showed that the highest percentage ratio was registered of that the highest percentage ratio was registered at age group (25-34) years old(26.61%).

In General, the infection ratio was higher in female at birth age, this result is agreed to what registered by Al-Kaisi(1994) and Al-Sheikh(1995) in Baghdad.

L.o et al. (2002) pointed that the highest infection ratio (23%) in NewZeland was at age group (25-29) years old and at 45 years old (4%), Hardy *et. al*. (1984) reveled that the highest infection ratio was at early age group (14-19) years old in Japan , while in indonesia was registered (36.0%) at age group (21-25) years old (Widjana, 1993).

In Hindustan, Surdana (1994) showed that the highest infection ratio was noticed at age ≥ 49 years old while the lowest ratio was at ≤ 45 years old.

While in our study it was 7.79% within men opus due to sexual inactivity represented by decreasing levels of Estrogen, Glycogen and normal pH of vagina(Battistini,1997), taking into consideration, those factors that do not encourage the development and proliferation of parasite during this stage. The diversity of sample numbers representing of each age groups may had influence on infection ratio of *T. vaginalis*

The occurrence of higher infection ratio in aged females may due to poor body health that cause less resistant to the infections (Schmidt & Roberts,1996).

In this study, the highest infection was registered at age groups(25-34) years old and was 8.08% which are agreed to Morrison(1997) study in Zambia. No infections were registered in males and age groups (15-24) , (35-44) and ≤ 45 years old due to the lack of samples within these ages especially monthly changes of ***T. vaginalis*** infection and ethics of Iraqi community and traditions in comparison, the results of this study concerning the infection was less than the parasite infection registered

in China of age group (25-35) years old due to the Iraqi's community ethics and higher population of China.

According to the results, we recommend to establishing a STDs results accomplished by research data a co-operation of ministry of higher education with health ministry, Starting and emphizing health propaganda on hazards of STDs through media.

And Investigation for the parasite in the seminal Fluids, especially during Nitrogen freezing in the arterial Fertilized center.

Table(4):- Percentage Infection of *T. vaginalis* according to age groups

age (years)	No. of Samples (female)	No. of Infections (females)	Percentage %	No. of Samples (female)	No. of Infections (females)	Percentage %
15-24	17	0	0	61	11	18.03
25-34	99	8	8.08	193	39	20.21
35-44	41	0	0	204	28	13.73
>45	8	0	0	77	6	7.79
Total	165	8	4.84	535	84	15.7

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دراسة وبائية للاصابة بطفيلي المشعرات المهبلية *Trichomonas vaginalis* في محافظة اربيل (أقليم كردستان /العراق)

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الخلاصة

اجريت دراسة وبائية للتحري عن انتشار الاصابة بطفيلي المشعرات المهبلية ***T. vaginalis*** بين الذكور والاناث في محافظة اربيل للمدة من ايلول 2005 ولغاية نهاية نيسان 2006، اذ تم فحص 700 عينة منها 535 من الاناث ماخوذة بطريقة المسحات المهبلية و165 عينة مأخوذة من السائل المنوي والأدار للذكور.

تم تشخيص الاصابة بطفيلي ***T. vaginalis*** في 84 عينة وبنسبة الاصابة 15.7./ . في الاناث، اما في الذكور فكان عدد المصابين 8 بنسبة اصابة 4.85./. كما بينت الدراسة اختلاف نسب الاصابة خلال اشهر الدراسة ، اذ كانت اعلى نسبة بين الذكور خلال شهر تشرين الثاني 2005 فقد بلغت 9.52./. واقل نسبة خلال شهر نيسان 2006 وكانت 3.27./. اما بين الاناث فقد بلغت اعلى نسبة اصابة (32.26./.)خلال شهر كانون الاول 2005 واقل نسبة خلال شهر كانون الثاني 2006 وكانت 9.3./. كما اختلفت نسب الاصابة في المناطق المختلفة في محافظة اربيل حيث بلغت نسب الاصابة في قضاء اربيل (14.99./.)، كويسنجق (13.33./.) ، قوشتبه (12.50./.)، شقلاوة (10.99./.)، سوران(8.51./.) . كما بينت الدراسة ان اعلى نسبة للاصابة كان في الفئة العمرية (25 – 34) سنة اذ بلغت 20.21./.

ولاول مرة في العراق تم تشخيص الطفيلي ***T. vaginalis*** في السائل المنوي بطريقة المسحة المباشرة للرجال.