

Incidence of Chlamydia trachomatis and Trichomonas Vaginalis Genital Infections among Non-Pregnant Women in Al - Najaf Province

الإصابة بالكلاميديا الحثرية والتريكوموناس المهبليّة التناسلية لدى النساء غير الحوامل في محافظة النجف

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الخلاصة:

خلفية البحث: تواجه النساء مشكلة كبيرة بسبب الأمراض التي تنتقل عن طريق الاتصال الجنسي. **الهدف:** التحري عن نسبة الإصابة بالكلاميديا الحثرية والتريكوموناس المهبليّة في النساء التي تراجع مستشفى الزهراء للولادة في مدينة النجف. **المنهجية:** أجريت الدراسة على (٨٦) امرأة تراجع إلى مستشفى الزهراء للولادة والأطفال في مدينة النجف للفترة من نيسان إلى أيلول ٢٠١٨. تم أخذ عينات من عنق الرحم من نساء يعانين من سرطان عنق الرحم وتآكل عنق الرحم للكشف عن المتدثرة الحثرية والتريكوموناس المهبليّة. **النتائج:** أظهرت النتائج إن هناك ٥٠ عينة إيجابية مع المتدثرة الحثرية بنسبة (٥٨,٢) و ٣٦ عينة سلبية وبمعدل (٤١,٨) وأظهرت إن هناك ٢٤ عينة إيجابية مع التريكوموناس المهبليّة بنسبة (٢٧,٩) وكان عدد العينات السلبية ٦٢ بنسبة (٧٢,١) مع اختلاف معنوي عند معنوية اقل من (٠,٠٥) بين العينات الموجبة والعينات السلبية. لم يكن هناك ارتباط بين هذه الكائنات الدقيقة واستخدام وسائل منع الحمل ، نوع الولادات ووقت الدورة الشهرية.

الاستنتاج: خلصت هذه الدراسة إلى ارتفاع نسبة المتدثرة الحثرية مع نسبة متوسطة من داء المشعرات المهبلي بين النساء في مدينة النجف، عدم وجود تأثير كبير بين هذه الكائنات والمتغيرات في هذه الدراسة ربما تشير إلى قدرتها على الانتشار في أي حال ويتطلب تشخيصها وعلاجها بدقة. **التوصيات:** ونتيجة لذلك ، توصي هذه الدراسة بإجراء دراسات وبائية للأمراض المنقولة بشكل دوري وزيادة إجراءات التوعية بشأن الأضرار الناجمة عن هذه الأمراض ومخاطرها.

Abstract:

Background: Trichomonas vaginalis infections are greatly connected with the Existence of other STIs (gonorrhea, chlamydia, and Human Immunodeficiency Virus).

Aims of study: To investigate the infection rate of Chlamydia trachomatis and Trichomonas vaginalis in women who attended to Al-Zahraa Hospital for Maternity and Children in Al- Najaf city.

Methods: A cross-sectional study conducted on 86 women was attended to Al-Zahraa Hospital for Maternity and Children in Al- Najaf city at period between Aprils to September 2018. Cervical samples were taken from women suffering from cervicitis or cervical erosion to detect the Chlamydia trachomatis and Trichomonas vaginalis.

Results: the results show there was 50 positive samples with Chlamydia trachomatis (58.2%) and 36 sample negative (41.8%) and showed there was 24 positive samples with Trichomonas vaginalis (27.9) % and negative was 62 (72.1) % with significant difference ($P \leq 0.05$) between positive and negative patients. There was no associated between these microorganisms and use contraceptive or none, mode of delivery and time of the menstrual cycle.

Conclusion: This study concludes high percentage of Chlamydia trachomatis with intermediate percentage of Trichomonas vaginalis among women in Al- Najaf city. No significant effect between these organisms and the variables in this study may be indicate the ability of them to spread in any case and required the accurately diagnosed and treated.

Recommendation: As a result, the present study recommends the epidemiological study of migratory diseases periodically and increasing the awareness procedures for the damage of these diseases and their risks.

Key word: Chlamydia trachomatis, Trichomonas vaginalis, type of contraceptive, mode of delivery.

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INTRODUCTION

Chlamydia trachomatis infections are the most commonly reported sexually transmitted bacterial infections in the United States and globally ⁽¹⁾. Untreated Chlamydia infection increases may result in infertility, ectopic pregnancy and chronic pelvic pain in some women ^(2, 3). Moreover, untreated Chlamydia infection women may lead to risk for a newborn child like conjunctivitis, pneumonia and death ⁽⁴⁾.

Chlamydia trachomatis exists as 15 different serotypes. These serotypes cause four major diseases in humans; endemic trachoma, sexually transmitted disease and inclusion

conjunctivitis, and lymphogranuloma venereum ⁽⁵⁾. Chlamydia, because of its cell wall, is able to inhibit phagolysosome fusion in phagocytes ⁽⁶⁾. Genital contact during delivery of new born may infect by baby ⁽⁷⁾.

Chlamydia trachomatis exists in more than 15 immune types (A-L) type A, B and C cause trachoma, types D-K cause genital tract infection, it is a common cause in women, cervicitis develops and many progress to salpingitis and pelvic inflammatory disease which can result in infertility or ectopic pregnancy ⁽⁷⁾. The women who conceiving child faces a great problem with sexually transmitted disease (STD) ⁽⁸⁾. Trichomonas vaginalis infections are greatly connected with the Existence of other STIs (gonorrhea, chlamydia, and Human Immunodeficiency Virus) ⁽⁹⁾.

Trichomonas vaginalis is a protozoan parasite that infects the urogenital tract of humans. It is one of the most common causes of non-viral sexually transmitted diseases in the world ⁽¹⁰⁾. According to world health organization, trichomonas vaginalis estimates 280 million infections yearly, and the majority of infected people living in growing countries ⁽¹¹⁾. Although the disease caused by Trichomonas vaginalis (named Trichomoniasis) infected the men and women, exclusively the symptoms appear in women ⁽¹²⁾. Trichomoniasis (*Trichomonas vaginalis*) is considered as a marker for biological an evaluation to another STD ⁽¹³⁾. The significant prevalence of Trichomoniasis and gonorrhea emphasizes the need for accurate diagnosis and effective surveillance to prevent serious reproductive complications in women ⁽¹⁴⁾. In a study performed by Abdul-Karim et al ⁽¹⁵⁾, Chlamydia trachomatis suggested as an etiologic factor for spontaneous abortion in Baghdad, Iraq.

AIM OF STUDY

This study aim to investigate the infection rate of Chlamydia trachomatis and Trichomonas vaginalis in non-pregnant women in Al- Najaf province

METHODOLOGY

A cross-sectional study conducted on women was attended to Al-Zahraa Hospital for Maternity and Children in Al- Najaf city at period between Aprils to September 2018. A total of 86 cervical samples were taken from women suffering from cervicitis or cervical erosion to detect the Chlamydia trachomatis and Trichomonas vaginalis. The swab was provided by chlamydia kit, In this step the cervix must be cleaned with a sterile cotton ball because mucus may be false result. The swab was inserted into the endocervical canal until most of the tip is no longer visible, rotate the swab for 15-30 Sec, withdraw, and then place it in the sample collection tube. It should avoid using antiseptic, analgesic and lubricants to avoid false result. Immune chromatography's test (Bio rapid-chlamydia-Antigen, Bio kit–Spain) was used according to manufacturer's instructions kit to detect Chlamydia trachomatis.

Interpretation of the results as follows:

- The kit test should be read within one hour incubation and should not read after one hour because, it may appear a phenomena named (artifact) or (ghost bounds) these bands or shadows appear due to precipitation of the conjugate or dehydration of the sample. This result has to be considered as a true negative.
- Positive result, if two colored band (B, C) are visible within one hour incubation, Regardless it thickness, as the thickness of the line is related to the Chlamydia trachomatis concentration in the sample.
- Negative result, if only one colored band (c) is visible.
- Invalid result, if no distinct colored appears (B and C).

Cervical secretion of patients was microscopically screened for *Trichomonas vaginalis* using saline solution and detection of it by wet mount examination. The information was obtained directly from women using a questionnaire form.

Statistical analysis

The statistical analysis was performed using statistical analysis system (SPSS); version 19. (SPSS Inc. Chicago IL. USA). Prevalence of infection was performed with different variables by Chi-squared test. The probability values were $P \leq 0.05$

RESULTS:

Table (1): Distribution of Chlamydia trachomatis in non-pregnant women

Infection	Chlamydia trachomatis	Trichomonas vaginalis	p. value
Positive	50 58.2%	24 27.90	0.001*
Negative	36 41.8%	62 72.10	
Total	86	86	

* Significant at ($P \leq 0.05$)

A total of 86 cervical samples was taken from women in Al- Najaf city observed, there was 50 positive samples with Chlamydia trachomatis in percent (58.2%) and 36 sample negative in percent (41.8%) and showed there was 24 positive samples with Trichomonas vaginalis in percent (27.9) % and negative was 62 in percent (72.1) % with significant difference ($P \leq 0.05$) between positive and negative patient as shown in table (1).

Table (2): Distribution of infection patients according to use contraceptive

Positive patients	IUCD*	Hormonal	Condoms	Outside	Non	value
Chlamydia trachomatis (50)	(8)16%	(14) 28%	(4) 8%	(8)16%	(16)32%	1.288**
Trichomonas vaginalis (24)	(4)16.6%	(7) 29.1%	(3)12.5%	(5)20.8%	(5)20.8%	

* IUCD (intrauterine contraceptive device). **No significant at ($P \leq 0.05$).

In (table 2) the results showed that the percent of positive sample of Chlamydia trachomatis in non-contraceptive use women higher than others variables with rate16 (32%). on the other hand, the results observed that the women infected by Trichomonas vaginalis, which they used hormonal contraceptive was higher compared with others were 7 (29.1) %.

Table (3): Distribution of Chlamydia trachomatis infection or non- according to the type of delivery.

Chlamydia trachomatis	Normal delivery	Cesarean section	Value
No+(50)	(46) 92%	(4) 8%	1.530*
No- (36)	(30) 83.3%	(6) 16.6%	

* No significant at ($P \leq 0.05$).

Table (4): Distribution of *Trichomonas vaginalis* infection or non- according to the type of delivery.

<i>Trichomonas vaginalis</i>	Normal delivery	Cesarean section	value
No+(24)	(16) 66.6%	(8) 33.3%	0.058*
No- (62)	(43) 69.35%	(19) 30.6%	

* No significant at ($P \leq 0.05$).

Table (5): Distribution of patients according to time of menstruation cycle

Chlamydia trachomatis	1st	2nd	3 rd	value
No+(50)100%	(18) 36%	(20) 40%	(12) 24%	4.009*
No- (36) 100%	(6)16.6%	(20) 55.5%	(10) 27.7%	
<i>Trichomonas vaginalis</i>				value
No+ (24) 100%	(9)37.5%	(6) 25%	(9) 37.5%	0.058*
No-(62)100%	(22) 27.4%	(17) 37.09%	(23) 35.4%	

* No significant at ($P \leq 0.05$).

Also the study observed, there was no high different in number between the patient according to time of menstruation cycle and the higher percentage was recorded in negative Chlamydia patients at second week of menstruation cycle were (55.5%) compared with others periods, otherwise, the percentage was recorded 23 numbers in negative *Trichomonas* patients in the third week of menstruation cycle (37.1%) as shown in table 5.

DISCUSSION

Sexually transmitted diseases are a main universal cause of severe sickness, infertility, long- range disability and death, with acute psychological and medical consequences for millions of children, women and men ⁽¹⁶⁾. In the present study the rate of infection for Chlamydia trachomatis was 58.2 (table 1), this result higher than other conducted by Al-Saadi ⁽¹⁷⁾ in Al- Diwania province, Kareem ⁽¹⁸⁾, in Al- Najaf province, Salman ⁽¹⁹⁾, and Salman et al. ⁽²⁰⁾ in Kirkuk city were 26, 24, 14.67 and 41.96 respectively and there was significantly different between positive and negative sample. This may due to the capability of this microorganism to spread. The infection passed undiagnosed, so untreated and consequently the vicious circle will not break, so the microorganism will be transmitted from one to another ⁽¹⁷⁾.

In this study, the results showed that *Trichomonas vaginalis* recorded rate was 27.1% (table 1). And the result in the present study higher than other studies were done in Iraq as ⁽²¹⁾ in Sulimania 10.2%, ⁽²²⁾ 20.49% in Kirkuk and ⁽²⁰⁾ also in Kirkuk city. This may due to high sexual activity among infected women. Women under 20 years of age are the most infected, this is thought to be due to anatomical differences in cervix of younger women, use of contraceptives particularly oral type and higher sexual activity also increases the risk of infection ⁽²³⁾. Older age seems to be a risk factor for *Trichomonas vaginalis* infection ^(24, 25). The increased prevalence of infection in older women may indicate a long standing infection

that does not naturally resolve and that is likely missed by screening programs, attentive on younger women⁽²⁶⁾.

Otherwise, the infection rate in this study lower than⁽²⁷⁾ study in Baqubah they showed a 41.6 % and⁽²⁸⁾ in Baghdad 85.5%. This may relate to number of collecting samples. High prevalence of Trichomoniasis among Iraqi women, which should sound the alarm for the official institution to take their efforts against this STD.⁽²⁹⁾ the results showed that there was no significant effect among the positive sample of Chlamydia trachomatis and Trichomonas vaginalis according to use contraceptive or none (table 2). The rate with Chlamydia trachomatis in non-contraceptive use women was 16 (32%), this disagree with⁽³⁰⁾ in Al-Sader city, Baghdad when she showed higher rates of Chlamydia trachomatis oral contraceptive and intrauterine contraceptive device (IUCD). No association between oral contraceptive use and sexually transmitted infection acquisition⁽³¹⁾. On the other hand the result revealed that the women, which they used oral contraceptive was the highest in patient infected with Trichomonas vaginalis were 7 (29.16) %, but this result disagrees with⁽³²⁾ in Baqubah city when they showed infection with Trichomonas vaginalis significantly correlated to use of IUCD and combined oral contraceptive pills. The difference may be related to type of techniques were used in detection of these microorganisms.

The present study observed no significant difference between mode of delivery of both of Chlamydia trachomatis and Trichomonas vaginalis (table 3, 4), this may due to these microorganisms have ability to infect all women in any case. The increasing incidence of infection in the community has been well documented along with an increase in cases of neonatal Chlamydia trachomatis^(33, 34). No association recorded in the present study between the time of menstruation of all samples (table 5). This result agrees with⁽³⁵⁾ when they concluded there was no association between positive results for T. vaginalis and hormonal contraceptives, menstrual cycle and other variables. The lack of lactobacilli by itself is not associated with an increase in the rate of spread of Bacterial vaginalis, as spotted in women at period peri- and postmenopausal; this observation suggests that the decline in lactobacillus colonization is more likely an outcome than a major cause of the anaerobic modification of the vaginal ecology⁽³⁶⁾.

The correlation between vaginal lactobacilli and Trichomonas vaginalis stay cloudy, although it could affect the important parts of infection; for instance, the existence of abnormal vaginal flora after cervicovaginal conditions and antimicrobial treatment of these conditions may encourage relapse of infection⁽³⁷⁾. The women with higher grades of education or a related factor can be infected with vaginal lactobacilli which may connect with Trichomoniasis⁽³⁸⁾.

CONCLUSION

Highest of infection recorded of Chlamydia trachomatis with intermediate infection of Trichomonas vaginalis among women in Al- Najaf city. No significant effect between these organisms and the variables in this study may be indicate the ability of them to spread in any case and required the accurately diagnosed and treated.

RECOMMENDATION

As a result, the present study recommends the epidemiological study of migratory diseases periodically and increasing the awareness procedures for the damage of these diseases and their risks.

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