

Chlamydia trachomatis infection in antenatal and gynecological patients in Kirkuk city.

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Abstract

Context:- In spite of the wide-ranging literature on prevalence of Chlamydia trachomatis infection in women, there are few studies on the relationship between Chlamydia infection, infertility & using of different methods of contraception. **Objective:-** To analyze the frequency of infection by Chlamydia trachomatis among fertile & infertile women & to assess role of using contraception in causing chlamydial infection. Design study: - Cross sectional study. **Setting:-** Gynecological & antenatal clinics in both Kirkuk general hospital & Azadi general hospital and also from private clinics. Sample :- An analysis of 600 swabs from 300 women was carried on during the period between 1st of October 2007 to 31st of December 2008. **Main measurements:-** The diagnosis of Chlamydia trachomatis infection was made by using rapid lateral immuno-chromatography device test. **Results:** 83(27.66 %) had Chlamydia trachomatis infection. Chlamydia co-infection with other microorganisms was significant $P < 0.05$ specially with Candida spp, Gardnerella vaginalis & Trichomonas vaginalis. Relationship between Chlamydia trachomatis infection & age was not significant $P > 0.05$ although the infection rate was higher in women aging from (15 to 25) years, (35.45 %). significant relationship $P < 0.05$ was obtained between women using contraception & Chlamydia infection, the rate was(31.48) % & women using intrauterine contraceptive device (IUCD) shows high rate(46,80%) infection . Women in third trimester of pregnancy shows high rate (36.6 %) of chlamydial infection than women in first & second trimesters. abdominal pain 33% & vaginal discharge (31.63%) were more frequent symptoms of women with chlamydial infection comparing to other clinical presentations $P < 0.05$. Chlamydia trachomatis highly occurred (15.33%) in specimen with pH ranging from 7 to 8 than acidic pH, $P < 0.05$. Relationship between Chlamydia distribution, type of genital swab & women infertility was not significant. **Conclusion:** The all rate of Chlamydia infection among women in Kirkuk city was high. Young aged women were more susceptible for getting chlamydial infection than elderly women. Contraception using especially IUCD shows high incidence of Chlamydia infection than other methods. Relationship between pH of specimen & Chlamydia infection was significant $P < 0.05$.

Key words: Chlamydia, infertility, contraception, pregnancy.

Introduction

Chlamydiae are obligate intracellular bacterial pathogens, which mean, they are unable to replicate outside of a host cell. However, to disseminate effectively, these pathogens have evolved a unique biphasic life cycle that they alternate between two functionally and morphologically distinct forms (1).

Chlamydia (from the Greek χλαμύδος

meaning "cloak") is a common sexually transmitted disease STD in both women & men caused by the bacterium, Chlamydia trachomatis (2) Chlamydia is a major infectious cause of human eye and genital disease (3&4) . C. trachomatis is naturally found living only inside human cells and is one of the most common sexually transmitted infections in people worldwide , about 2.8 million cases of chlamydia

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infection occur in the united states each year (5) .Chlamydia can be transmitted during vaginal, anal or oral sex, and can be passed from an infected mother to her baby during vaginal childbirth (6) . Many people with Chlamydia exhibit no symptoms of infection. Between half and three-quarters of all women who have chlamydia have no symptoms and do not know that they are infected (7) .The majority of men and women with chlamydial infection are asymptomatic. When symptoms do appear in women with this disease they may include a mucopurulent vaginal discharge (8) ;painful or frequent urination; burning or itching of the vaginal area; painful sex; and abnormal bleeding (9) . Genital chlamydial infection can cause significant short and long term morbidity with accompanying cost to individual and the health service, the complications of chlamydial infection include pelvic inflammatory disease(PID), ectopic pregnancy and tubal infertility in women, epididymo-orchitis in men, and reactive arthritis, women diagnosed with chlamydial infection may suffer anxiety and psychological distress (10) .Researches concerning Chlamydia infection among people in Iraq are scattered specially in Kirkuk province, this may be due to lack of diagnostic facilities in medical laboratories specially tissue culture or high quality instruments like PCR, DNA probes ELISA, IFAT microscope for diagnosing chlamydia serologically.

Materials & Methods

A cross sectional study was carried on during the period between 1st of October 2007 to 31st of December 2008 on 300 women attending gynecological & antenatal clinics in both Kirkuk general hospital & Azadi general hospital and also from private clinics; whose symptoms were abdominal pain, genital bleeding , vaginal discharge, itching, dysuria & dyspareunia & those who had infertility & women attending for contraception .Women who received antibiotics for the last two weeks were excluded from the study.

After taking full history & clinical examination, two swabs (endocervical & high vaginal) were taken from each woman, by passing bivalve vaginal speculum without using antiseptics lotions. Directly each swab was soaked inside the second cover of swab containing transport medium, then the swabs were transported using ice pack box as it was recommended for sample collection & preservation till processing (11). The first swab was examined for (odor, color of discharge , Gram staining , cultivation for bacteriological investigations & pH of specimen which was determined by using gradient pH filter paper (Germany manufactured) (12) The second swab was used for detecting Chlamydia antibodies using rapid Chlamydia test device as a qualitative lateral chromatography immunoassay for the detection of Chlamydia antigen from female genitalia (13). Complete kits were purchased from Acon laboratories, Inc. USA.

Statistical analysis, Chi-square was applied for determination of P-value 0.05 variances among variable parameters within the study .

Results

From examining of total 600 swabs using rapid lateral immuno-chromatography test, the all rate of positive chlamydial infection was 13.85% ,while negative rate was 86.2 % $P < 0.05$, table (1).

From 300 women examined, the rate of positive chlamydial infection was 27.66%, and negative rate was 72.4%

Positive Chlamydia rate involves pure or single infection distributed in 25 samples with the rate 4.16 % , while double infections distributed as

Chlamydia & Candida species in 22 samples with the rate 3.64 % . , followed by 3% 2.5 % & 0.53 % as, Chlamydia+ Trichomonas vaginalis, Chlamydia + Gardnerella vaginalis & Chlamydia + Neisseria gonorrhoeae respectively $P < 0.05$, table (2).

Demonstrating of Chlamydia antibodies according to type of samples reveals high positive rate 16.36 % from endocervical

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swabs, followed by 11.33 % in high vaginal swabs $P > 0.05$, table (3). Distribution of Chlamydia infection according to women ages revealed the following rates: 35.41%, 26.31 %, 25.35 % & 20.96 % among age groups (15 to 25 years), (41years & above), (36 to 40 years) & (26 to 35years) respectively. Table (4), $P > 0.05$.

The rate of Chlamydia infection in infertile women 31.11% was higher than fertile women 26.19 % but distribution of Chlamydia antibody was not significant $P > 0.05$.

To assess the prevalence of Chlamydia infection among women using different methods of contraception & women not using contraception, total size of women population in the study were 108 women using three types of contraception (IUCD, oral tablets & condoms) & 192 women not using contraception, the results in the former group show that women with IUCD have high rate of Chlamydia 46.80 %, followed by 25% in those using oral contraceptive, while the infection rate in women whom r husbands were using condom was 9.52% $P < 0.05$. While the rate of Chlamydia infection among women not using any method of contraception was 25.52 % . , this rate when it was compare with rates in first group was significant $P < 0.05$. Table (6).

Relationship between Chlamydia infection in regard to gestational age, the examination of 34 genital swabs of pregnant women from total number enrolled in the study revealed the following; chlamydia positive rates, 23.07 %, 22.22% & 36.36% distributed among women

In first , second & third trimesters of gestation. $P > 0.05$, table (7).

Frequency of Chlamydia antibody according to clinical presentations was clarified in table (8), via which's 44 women as asymptomatic shows 27.27 % of Chlamydia antibodies, while in other group (symptomatic).

The rate of Chlamydia antibodies was distributed at high rates in women with abdominal pain, vaginal discharge the rates were 33%, 31.63% respectively, followed by 23.68%, 19.16%, 17.85%,

15.78% in women with dyspareunia, itching, dysuria & genital bleeding respectively.

Frequency of Chlamydia infection in relation to specimen pH, give rise that high rate of Chlamydia infection 15.33 % was in specimen with pH ranged from 7 to 8 , followed by 9.0% & 3.33 % in specimen with pH 5 to 6 & 3 to 4 respectively, $P < 0.05$. Table (9).

Discussion

Chlamydia trachomatis infections are the most prevalent bacterial sexually transmitted infection (STI) recognized throughout the world. The sharp worldwide increase in the incidence of PID during past two decades has led to secondary epidemics of tubal factor infertility & ectopic pregnancy. Chlamydial PID is the most important preventable cause of infertility & adverse pregnancy outcome (14).

The described method for detecting Chlamydia in present study is aserological & epidemiological technique which was undertaken to assess the prevalence of Chlamydia trachomatis rate among women in Kirkuk city, its association with certain gynecological problems including infertility & using different types of contraception.

The all rate of chlamydial infection 27.66 % in the present study was lower than a study conducted by (15) in Baghdad, who recorded 37 % of C. trachomatis among males with urethritis. but it was higher than that recorded in Al-Najaf by (16) who recorded 24 % of Chlamydia in sera of women using the same method of the present study, the obtained rate in the present study was lower than (17) who mentioned that the prevalence rate of symptomatic & non symptomatic infections ranges from 32-37 % in pregnant women.

The variances in the rate may be due to type of laboratory methods (sensitivity, specificity & reactivity), size of tested number in the present study (300 women) compared to lesser number of women in other studies also to patients selection & self medication with antibiotics. The all

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rate of Chlamydia infection involved co-infections with other microorganisms specially *Candida* species with the rate 3.64 % followed by 3% of Chlamydia plus *Trichomonas vaginalis* & Chlamydia plus *Gardnerella vaginalis* (BV), these rates are an indicator to the degree of woman infection with urogenital microorganisms, poor hygienic habits & untreated the initial infection. Meanwhile BV is not a sexually transmitted disease and not related to poor hygiene. In fact too frequent washing or douching can contribute to disrupting the usual balance of healthy bacteria there (6). Chlamydia trachomatis plus *Neisseria gonorrhoea* detection with the rate 0.5 %, this low rate may be due to that although Chlamydia trachomatis coexist in 30 to 40 % (18), but gonococcal infection can even be diagnosed by direct gram staining, that can be treated early in course of illness, moreover antimicrobial agents directed toward gonococcal infection will have no effect on chlamydial infection. While Chlamydia infection passed undiagnosed, because it is not routinely done even for symptomatic patients.

The reason for a high rate of Chlamydia trachomatis among women with in age group (15 to 25 years), can be attributed to increase sexual activity as colonization increases proportionally to the number of sexual activity & perhaps to a lack of general medical care among young women.

Considering distribution of Chlamydia antibodies in regard of women infertility, although statistically the differences was not significant but the rate 31.11 % of chlamydial infection was high & should be taken in consider because Chlamydia can influence a woman's ability to conceive in two ways: it can lead to PID, which can cause infertility by damaging the Fallopian tubes, and / or result in cervicitis, which can lead to temporary infertility by affecting the cervical mucus (18). While the rate of Chlamydia infection 26.19 % among fertile women can interpreted as a silent chlamydia which can affect women health in future. The result of present study was in disagree with that recorded in India by (19) who recorded

Chlamydia trachomatis in 31 (28.1 %) from total of 110 infertile women.

In women using different types of contraception, it was found that the Chlamydia infection highly occurred in IUCD users 46.80% than those using contraceptive pills 25% & condom 9.52 %, this may be due to that IUCD does not protect against sexually transmitted infection in contrast to condoms or hormonal methods (20). Most cases of PID seem to result from ascending infection from cervix, initial epithelial damage caused by bacteria most likely to be by Chlamydia & *Neisseria gonorrhoea* which allow the opportunistic enters of other microorganisms; the spread of infection to upper part of genital tract may be influenced by using contraceptive device, instrumentation & vaginal douching (21).

Regarding Chlamydia in relation to pregnancy, although number of tested women 34 within 300 was little but Chlamydia frequency in 9 women with all rate 26.47 % is high ,especially in third trimester of pregnancy 36.36%, this may increase the rate of Chlamydia infection in neonate baby because during pregnancy chlamydial infection can cause adverse outcomes for mother & infant. These include: abortion, preterm labour, chorioaminonitis & postpartum endometritis. Intrapartum transmission to the infant can lead to eye & respiratory infection. (22).

The clinical symptoms associated with Chlamydia trachomatis infection were abdominal pain & vaginal discharge with the rates 33% ,31.63% respectively followed by dyspareunia 23.68 % genital itching 19.16 % & 27.27 % in women without symptoms , its worthwhile to investigate women without clinical symptoms for Chlamydia trachomatis infection.

Regarding distribution of Chlamydia & pH of specimens, high rate 15.33 % in PH ranged 7 to 8 & followed by 9% in pH 5 to 6 & lower rate 3 % in PH 3 to 4 this can be explained by altering the function & colonization of lactobacilli especially H₂O₂ production, which can produce direct microbicidal action so, low rate of

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Chlamydia infection within specimen with lower pH (23) .

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Table (1): Distribution of positive and negative rates of Chlamydial infection among women in Kirkuk province

| Total number examined | Number Positive | Percentage positive | Number Negative | Percentage Negative |
|-----------------------|-----------------|---------------------|-----------------|---------------------|
| Swabs 600 | 83 | 13.8 | 517 | 86.2 |
| Women 300 | 83 | 27.6 | 217 | 72.4 |

Chi-Sq=50.912

d.f=1

P < 0.05

Table (2): Chlamydia infection association with other microorganisms as single & double infections.

| Name of microorganisms | Number positive | Percentages Positive |
|----------------------------------|-----------------|----------------------|
| Chlamydia trachomatis | 25 | 4.16 |
| Chlamydia + Candida sPP | 22 | 3.64 |
| Chlamydia+ Gardnerella vaginalis | 15 | 2.5 |
| Chlamydia +Trichomonas | 18 | 3.0 |
| Chlamydia + Neisseria gonorrhoea | 3 | 0.5 |
| Total | 83 | 13.8 |

Chi.Sq=17.42

d.f=4

P < 0.05

Table (3): Distribution of Chlamydia antibodies in relation to type of women genital samples.

| Type of samples | Total number examined | Number positive | Percentage Positive |
|-------------------|-----------------------|-----------------|---------------------|
| Endocervical swab | 300 | 49 | 16.33 |
| High vaginal swab | 300 | 34 | 11.33 |
| Total | 600 | 83 | 13.8 |

Chi-Sq=3.146

d.f=1

P > 0.05

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Table (4): Relationship between Chlamydia *trachomatis* infection & age.

| Age group/ years | Number examined | Number positive | Percentage Positive |
|------------------|-----------------|-----------------|---------------------|
| 15—25 | 96 | 34 | 35.41 |
| 26—35 | 124 | 26 | 20.96 |
| 36—40 | 71 | 18 | 25.35 |
| 41 years & above | 19 | 5 | 26.31 |
| Total | 300 | 83 | 27.66 |

Chi-Sq=5.865 d.f=3 P> 0.05

Table (5): Correlation between fertile women, infertile women & Chlamydia antibody distribution.

| Fertility | Number. examined | Number positive | Percentage % |
|-----------|------------------|-----------------|--------------|
| Infertile | 90 | 28 | 31.11 |
| Fertile | 210 | 55 | 26.19 |
| All total | 300 | 83 | 27.66 |

Chi-Sq=0.762 d.f=1 P>0.05

Table (6): Distribution of Chlamydia *trachomatis* infection in relation to using different types of contraception & in women not using contraception (control group)

| Type of contraceptives | Total number examined | Number positive | Percentage Positive |
|---|-----------------------|-----------------|---------------------|
| Intra-uterine contraceptive device (IUCD) | 47 | 22 | 46.80 |
| Oral tablets | 40 | 10 | 25 |
| Condom | 21 | 2 | 9.52 |
| Total | 108 | 34 | 31.48 |
| Women not using contraception | 192 | 49 | 25.52 |

Chi-Sq=10.59 d.f =2 P<0.05

Table (7): Correlation between gestational ages & Chlamydia infection.

| Period of gestation | Total number examined | Number Positive | Percentage Positive |
|---------------------|-----------------------|-----------------|---------------------|
| First | 13 | 3 | 23.07 |
| Second | 9 | 2 | 22.22 |
| Third | 11 | 4 | 36.36 |
| Total | 34 | 9 | 26.47 |

Chi-Sq=0.689 d.f=6 P>0.05

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Table (8): Frequency of Chlamydia infection according to clinical presentations.

| Clinical presentations | Total number | Number positive | Percentages Positive |
|------------------------|--------------|-----------------|----------------------|
| Asymptomatic | 44 | 12 | 27.27 |
| Vaginal discharge | 196 | 62 | 31.63 |
| Itching | 120 | 23 | 19.6 |
| Dysuria | 84 | 15 | 17.85 |
| Dyspareuria | 38 | 9 | 23.68 |
| Abdominal pain | 103 | 34 | 33 |
| Genital bleeding | 38 | 6 | 15.78 |

Chi- Sq=13.9 d.f=6 p< 0.05

* some females have more than one symptom

Table (9): Positive Chlamydia *trachomatis* rates in regard to pH of the specimens.

| pH ranges | Number examined | Number positive | Percentage Positive |
|-----------|-----------------|-----------------|---------------------|
| 3-----4 | 51 | 10 | 3.33 |
| 5-----6 | 141 | 27 | 9.0 |
| 7-----8 | 108 | 46 | 15.33 * |
| Total | 300 | 83 | 27.66 |

Chi-Sq=18.789

d.f=2

P < 0.05

الخمج بالمتدثرة الحثرية (الكلاميديا) في النساء المراجعات لأستشاريات النسائية ورعاية الحوامل في مدينة كركوك

بحث مقدم من قبل

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النسائية والتوليد/ جامعة كركوك

الخلاصة:-

المحتوى: بالرغم من توفر مدى واسع من الأبحاث فيما يخص نسبة انتشار المتدثرة الحثرية (الكلاميديا) في النساء، إلا أن الدراسات حول الخمج بالمتدثرة الحثرية وعلاقتها بالعقم واستخدام موانع الحمل والحمل قليلة. **الغاية:** لتحليل نسبة تردد الخمج بالمتدثرة الحثرية بين النساء الخصبة والعقيمة والحوامل ولقياس دور استخدام موانع الحمل في أحداث الخمج بالمتدثرة. **تصميم الدراسة:** دراسة مقطعية. **المكان:** النساء الوافدين على استشارية النسائية والتوليد ورعاية الحوامل في مستشفى كركوك العام و مستشفى ازادي العام وقسم من العيادات الخاصة. **النماذج:** تم فحص ٦٠٠ قتيبة أخذت من ٣٠٠ امرأة من الفترة الأولى من تشرين الأول ٢٠٠٧ لغاية ٣١ كانون الأول ٢٠٠٨. **المقاسات الرئيسية:** تم استخدام طريقة المقاسة الجانبية المناعية (طريقة الكروماتوغرافي) لتحديد الحالات الموجبة بالمتدثرة الحثرية. **النتائج:** نسبة الخمج الكلية بالمتدثرة الحثرية سجلت في ٨٣ (١٣.٨ %). الخمج بالمتدثرة المرافقة كانت معنوية وبخاصة مع المبيضات ، الغاردنريلا المهبليّة والمشعرة المهبليّة. العلاقة بين الخمج بالمتدثرة والعمر كانت غير معنوية ولكنها عالية بين النساء في الفئة العمرية (١٥ إلى ٢٥ سنة) ، وكانت النسبة ٣٥.٤٥ % .تم الحصول على علاقة معنوية قوية بين الخمج بالمتدثرة واستخدام موانع حمل مختلفة حيث كانت النسبة الكلية ٣١.٤٨ % وخاصة بين النساء المستخدمات للولب أظهرت ٤٦.٨٠ % . النساء الحوامل في الفترة الأخيرة من الحمل اظهرن نسبة عالية ٣٦.٦ % مقارنة بالنساء في الفترة الأولى والثانية من الحمل. الأعراض الأكثر ترددا بخمج المتدثرة كانت الالم البطني ٣٣% و الافرازات المهبليّة ٣١.٦٣% مقارنة بالأعراض السريرية الأخرى . المتدثرة الحثرية سجلت بنسبة عالية ١٥.٣٣ % في النماذج ذات الأس هاء ٧ إلى ٨ مقارنة بالأس هاء الحمضية .العلاقة بين توزيع الخمج بالمتدثرة وعقم النساء كانت غير معنوية . **الاستنتاجات:** النسبة الكلية لخمج النساء بالمتدثرة في مدينة كركوك كانت عالية. النساء ذوات العمر الصغيرة أكثر تعرضا للخمج بالمتدثرة من النساء كبيرات العمر. استخدام موانع الحمل من قبل النساء وبخاصة اللولب أظهرت نسبة عالية بخمج المتدثرة الحثرية. العلاقة بين الخمج بالمتدثرة وأس هاء النموذج التناسلي كانت معنوية. بالرغم من كون خمج المدثرة الحثرية في النساء العقيمات أكثر من النساء الخصيبات الا انه كانت غير معنوية.

مفتاح الكلمات: المتدثرة الحثرية : العقم ، موانع الحمل، الحمل .