

## THE RISK OF INFERTILITY IN THE CHLAMYDIAL VAGINAL INFECTION

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اجري **الخلاصة** مقطعية على مائة من النساء المصابات بالتهيج المهبلي والعقم اللواتي يراجعن مستشفى النسائية والاطفال التعليمي في الديوانية وبعض العيادات الصحية وللفترة من الاول من اذار وحتى نهاية اب سنة 2005. لذلك من اجل تحديد نسبة الاصابة بالخمج المهبلي الناتج عن الاصابة ببكتريا الكلاميديا وعلاقته كعامل لاختطار للاصابة بالعقم عند النسوة. تم جمع البيانات الدقيقة عن تاريخهن المرضي واداء الفحص السرولوجي الكاشف عن بكتريا الكلاميديا في النجيج المهبلي لتشد خبص الاصابة به ذالم رضوة. كما ان الاسنتتاج ان الاصابة به ذالم خمج يشد كل نسبة 26% النسء المصابء بالتهيج المهبلي (ويعتبر كعامل اختطار = 6) بالنسبة للاصابة بالعقم.

**Abstract** Across-section study carried on 100 women attended the Maternity and Child Teaching Hospital and certain public clinics in Diwanya city from the first of march 2005 to the end of August 2005 ,and complete medical history was taken from each one ,then a serological test was done by using Chlamydial Kit (Biorapid Chlamydia antigen)to identify the rate of infection with Chlamydia and its correlation with risk of infertility in women .The study was revealed that the prevalence rate of chlamydial infection was 26% among women ,and there is an risk factor or Odds ratio (OR) =6 to produce infertility among women.

**Introduction**Chlamydia infection, a treatable sexually transmitted disease , is the most commonly reported infectious disease in the united state ,with approximately three million new cases each year. Untreated Chlamydia infection increases a women's risk for pelvic inflammatory disease(PID),infertility, ectopic pregnancy,and human immunodeficiency virus (HIV).infection. Newborn children of untreated women are at greater risk for problems like conjunctivitis , pneumonia and death .Chlamydia screening is extremely important because most infected women have no discernable symptom<sup>(1)</sup>. **Chlamydia trachomatis** is exists as 15 different serotypes .These serotypes cause four major disease in humans; endemic trachoma ,sexually transmitted disease and inclusion conjunctivitis ,and lymphogranuloma venereum <sup>(2)</sup>. Studies reveal that Chlamydia, because of its cell wall, is able to inhibit phagolysosome fusion in phagocytes <sup>(3)</sup> . The micro-organism is transmitted through infected secretions only. It infects mainly mucosal membranes, such as the cervix, rectum, urethra , and conjunctiva. It

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is primarily spread via sexual contact and manifests as the sexually transmitted disease<sup>(4,5)</sup>.

Detection of the bacterium can be accomplished by using both culture and non-culture tests, such as Fluorescent Monoclonal Test, Enzyme immunoassay, DNA probes, Rapid Chlamydial tests: uses antibodies against the lipopolysaccharid, Leukocyte esterase tests, detects enzymes produced by leukocytes containing the bacteria in the urine<sup>(6)</sup>.

Treatment of Chlamydial infection is accomplished with various antibiotics. Doxycycline is the antibiotic of choice because it is used for extended treatment. Recently, azithromycin has been proven as an effective single-dose therapy<sup>(7)</sup>.

In women, complication of *Chlamydia trachomatis* infection include post-partum fever, ectopic pregnancy, and pelvic inflammatory disease (PID). Scarring from PID may cause infertility<sup>(8)</sup>.

The aim of study is to evaluate the risk factor or Odds ratio (OR) of infertility among women with chlamydial infection.

### **Subjects and methods**

Across-section study was conducted on 100 women attending Diwanya Maternity and Child Hospital and some Gynecology / Obstetrics popular clinics in period between March and December 2005.

The criteria, which were used for inclusion the women in this study were:

- 1-The age from 15-45 years, not pregnant.
- 2-Women have history of vaginal discharge or infertility.
- 3-Women have history of previous PID.
- 4-Women have history of diseased fallopian tube.

From each woman history was taken including age, obstetrical and gynecological history including the gravida, history of vaginal discharge (color, odor, consistency), previous history of cesarean section, previous history of laproscopy or histosalpingography.

Through a sterile vaginal speculum, two samples of vaginal secretion were taken from posterior fornix of the vagina and endocervical canal, by means of disposable cotton swab. One swab was used to measure the pH of the vagina by the pH indicator paper strips of (narrow range 4-6).

The other swab is used to detect the *Chlamydia trachomatis* by using the Biorabid Chlamydial antigen (Biokit -Spain) this kit is

principally immunochromatographic test to detect the antigens from endocervical specimen, it employs a combination of monoclonal antibodies dyed conjugate(colloidal gold ) and polyclonal solid phase antibodies to selectively identified LPS antigen of the *Chlamydia trachomatis* species .The results are read qualitatively, each kit contain the following materials :

- Twenty biorapid Chlamydial Ag test devices.
- 10 ml extraction solution in extraction tube (20)tubes.
- Twenty swabs.
- Twenty extraction tubes with twenty filter dropper.

The data analyzed by estimated the propability (P value)test were recorded as significant whenever it was less than 0.05, also we estimated the risk factor (odds ratio=OR) for 2x2tables to determine the relation ship between certain gynecological and obstetrical problems such as infertility with vaginal chlamydial infection.

### **Results**

The prevalence rate of Chlamydia infection was 26 (26%) among women included in our subject .According to the age ,the women included in this subject distributed in to four groups ,and the main age group of total patients enrolled in the study was in the age group 20-29 year ,in which the peak occurrence of Chlamydia infection which is 18 (42.8%),and the main women which infected with Chlamydia infection are asymptomatic 22 (62.8%), while only 4(6.1%) are symptomatic .About 20(57.1%) from infected women with pH more than 4.5 ,and all these results statistically was highly significant ( $P < 0.05$ ,  $P < 0.01$ )table(1)..

The detection rate of chlamydial infection among patient with history of infertility was significantly higher ( OR=6 ) than those with history of premature labor ,ectopic pregnancy and cesarean section(OR=1.16 ,OR=2.1,OR=1.07 )respectively ,(table 2).

Also It was evident that the role of chlamydial infection in predisposing the infertility was demonstrated by the rate of it detection from patient with history of diseased tube and PID ,was significantly higher( OR=7) than infected patient with normal fallopian tube or no history of PID (OR=5) table(3).

**Table(1):Prevalence of Chlamydia infection in relation to selected variable.**

Variable	No .of cases tested	Positive. chlamydia infection		Test of significant
		No	%	
Age (year)				
< 20	20	4	20	P < 0.0 5
20-29	42	18	42.8	
30-39	27	3	18.5	
40-49	11	1	9	
Total	100	26	26	
Symptomatic	65	4	6.1	P<0.05
Asymptomatic	35	22	62.8	
Total	100	26	26	
Vaginal discharge				
Yes	89	26	26	P<0.01
No	11	0		
Total	100	26		
pH of vagina				
< 4.5	65	6	9.2	P.< 0.01
> 4.5	35	20	57.1	
Total	100	26	26	

**Table(2):Analysis of association history of certain obstetrical and gynecological problem with Chlamydia infection among women.**

History of Obstetrical/Gynecology problems		Chlamydial infection			Test of segnificant
		Yes	No	Total	
Infertility	Yes	9	6	15	OR=6 P<0.o5
	No	17	68	85	
	Total	26	74	100	
Ectopic pregnancy	Yes	6	9	15	OR=2.1 P>o.o5
	No	20	65	85	
	Total	26	74	100	
Premature labour	Yes	4	10	14	OR=1.16 P>0.05
	No	22	64	86	
	Total	26	74	100	
Cesearian section	Yes	3	8	11	OR=1.07 P>o.o4
	No	23	66	89	
	Total	26	74	100	



**Table (3) Analysis of association history of normal or diseased tube with or without chlamydial infection among infertile women.**

Women with normal or diseased tube and infertility	Chlamydia infection			Test of significant
	Yes	No	Total	
Infertile women with damage fallopian tube	7	2	9	OR=7
Infertile women with normal fallopian tube	2	4	6	
Total	9	6	15	
Infertile women with history of prior PID	5	1	6	OR=5
Infertile women with no history of prior PID	4	5	9	
Total	9	6	15	

Note: Total No of infertile women=15

Not :Total number of infertile women=15

**Discussion**

The present study showed that the prevalence rate of chlamydial infection was 26% from women included in our study, and this high prevalence rate was higher than than the result which conducted from the epidemiological study of some sexually transmitted disease in kufa city in which the prevalence rate of Chlamydia trachomatis was (24%)<sup>(9)</sup> might be that these infection passed undiagnosed , so untreated and consequently the vicious circle will not broken , so the microorganism will be transmitted from one to anther. Also it revealed that the women at the highest risk of chlamydial infection are sexually active young women 20-29 years of age table (1).

Also it found that the identification of microorganism from infertile women was significantly higher than fertile women or women with normal tube or has no history of PID (P < 0.05) with an increased risk (OR=6,OR=7) respectfully table (2,3) .

This finding seems to be agreement with most studies in which the infertility was related to the development of tubal obstruction as a result of salpingitis and intraluminal inflammation caused by chlamydial infection as these studies found that chlamydial antibody was significantly increase among patients with acute salpingitis<sup>(10)</sup> and , other serologic studies suggest that at lest 64% of cases of tubal

infertility and 42% of ectopic pregnancy are attributable to chlamydial infection<sup>(11)</sup>. Also other statistics show that one chlamydial infections can lead to 12% chance of infertility ,two chlamydial infection can lead to 40% chance of infertility ,and three Chlamydia infection can lead to an 80%chance of infertility<sup>(12)</sup>. . **References**

- 1-Ten leading nationally notifiable infectious diseases –US. MMWR, 1995;Cited in centers fordisease Control,1997.Chlamydia Screening Practice of Primary-Car Providers –Wake County,North Carolina,1996.
- 2-Madigan,Michael,Mmartinko,John,and Jack Parker (1997).Brocks Biology of Microorganisms.eight edition.New Jersey: Prentice Hall.
- 3-Hatch,Thomas P.(1996).Disulfid Cross-Linked Envelope Proteins: the Functional Equivalent of Peptidoglycan in Chlamydia ,Journal of Bacteriology 178:1-5.
- 4-Barnes,R.C.(1990).Infections Caused by *Chlamydia trachomatis* Chapter 6 in Morse ,et al, Sexually Transmitted Disease .J.B. Lippincott .Philadelphia.
- 5-The Boston Women Health Collective (1992).The New Our Bodies Ourselves. New York : Simon and Schuster.
- 6-Center for disease control (1993).Recommendations for the Prevention and Management of *Chlamydia trachomatis* infection .MMWR 1993;42 (RR-12).
- 7-Coghlan,Andy(1996).Shapely Vaccine Targets Chlamydia .New Scientist. 152: 18.
- 8-Hillis,Susan et al.(1995) Impact of a Comprehensive Chlamydia Prevention Program in Wisconsin .Family Planning Perspectives .27: 108-111.
- 9-Kareem Ch.M.,(2001).Epidemiological study of some sexually transmitted disease in Najaf province ,Master thesis ,Kufa University, college of medicine, p:82.
- 10-Azenabor,A,A; and N.O.Eghafona.(1997).Association of Chlamydia trachomatis antibodies with genital tract disease in women in Benin city, Nigeria. Tropical Med.And international Health.Vol.2 No.4 pp.389-392.
- 11-Hodgson R, Driscoll G Dodd J et al (1991):*Chlamydia trachomatis*: the prevalence ,trend and importance in initial fertility management. Aust NZJ Obstet Gynacol ; 30: 251-254.
- 12-Masse R, Laperriere H.Rousseau H et al (1991):*Chlamydia trachomatis* cervical infection ,CMAJ;145:953-961.