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The Prevalence of Chlamydia Trachomatis Infection Among Gynecological Outpatients Attendees at Central Basra Hospitals Using One-Step Chlamydia Test

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ABSTRACT

Objective: The objective of this study is to estimate the prevalence rate of chlamydia infection among gynecological outpatients attendees at central Basra hospitals and assessing the predisposing factors and clinical features.

Methods: This is a cross-sectional study that was conducted at central Basra hospitals during the period from 15 February 2018 to 10 May 2019. The distribution of cases according to the hospitals was 290 patients from Basra maternity and child hospital, 85 patients from Basra general hospital, 75 patients from AL Mawani hospital and 50 patients from AL Fayhaa hospital, this variation in the number depend on outpatient clinics attendees.

participants were assessed according to a predesigned questionnaire and screening test for Chlamydia Trachomatis was done for all patients under study by using one-step chlamydia test (Chlamydia Rapid Test Device).

Results: Among 500 patients 60% of them were from the age group 20-40 year, 62% were P2-4 and 89% from multipara and grand multipara, 60% were illiterate and 38% were having primary and secondary school, 61% from low socioeconomic class, nonusers of contraception were 23.7% and about 90% of patients were living at the central areas of Basra.

Several factors have a statistically significant effect on the Chlamydia Trachomatis infection like being infertile p-value 0.000 or having high parity p-value 0.013 or non-barrier contraceptives users p-value 0.035. While other factors have no statistically significant effect like age p-value 0.506, socioeconomic state p-value 0.779, and level of education p-value 0.986.

Conclusion: The prevalence rate of Chlamydia infection is low among the population in the central areas of Basra city compare to other countries. Being infertile or of high parity are among the significant risk factors. Barrier contraceptives significantly reduced the risk of infection and can be used to protect against the transmission of infection.

Keywords:

Chlamydia trochomatis, Gynecology, Basra Central Hospitals

Introduction

Chlamydia Trachomatis is the most common bacterial Sexually Transmitted Infections (STIs) worldwide, about 100 million cases of Chlamydia Trachomatis are detected annually worldwide according to the World Health Organization (WHO). In the united states alone, approximately 1.4 million Chlamydia infections occurred in 2013 [1,2]. Chlamydia is known as the “silent epidemic”, as in women it may not cause any symptoms in 70-80% of cases and can remain for months or years before being discovered [3].

Residents based data from the united states, Australia, and the united kingdom guide that between 3 and 5% of people under 30 years of age will have a Chlamydia infection at any point in time [4-8]. Globally, in India, approximately 105.7 million cases for each year [9].

In other studies in Ethiopia, the prevalence rate for Chlamydia infection of the cervix was 5.9%. Among acquitted women joining the antenatal clinic in Benin City, Nigeria, a prevalence rate of 13.3% was noted, while Nwanguma et.al reported a prevalence of 33% in asymptomatic volunteers in another Nigerian population [10-12]. The incidence of Chlamydia infections in women has augmented extremely from 79 to 467 per 100,000 between 1987 and 2003 [13].

Calculations of the incidence of disease consequence (specifically, PID, ectopic pregnancy, and infertility in women) are lacking, largely because there are very few natural-history studies of Chlamydia infections in humans. A methodical review trying to establish the attributable risk of infertility among women following genital Chlamydia infection concluded that there is formerly not sufficient evidence to accurately determine the population attributable risk [14].

Screening programs for Chlamydia have been set up to reduce transmission and reproductive tract morbidity in many developed countries. Recommended annual screening of all sexually active women aged 25 years or less by the United States Center for Disease Control (CDC) and prevention, as well as the screening of older women with risk factors (for example, those who have a new sex partner or multiple sex partners [15,16].

Age is the most common demographic associate of infection

with Chlamydia infection in women is young age (<20 years). Other factors associated with Chlamydia infection include unmarried status, black race, null parity, and poor socio-economic condition. Multiple sexual partners, a new sexual partner, a lack of use of barrier contraceptive devices and synchronized Gonococcal infection are also known to be related to Chlamydia infection [17,18].

The Screening tests include Chlamydia Trachomatis Nuclear Acid Amplification Test (NAAT) performed on an endocervical swab specimen that provides the highest sensitivity [19,20]. Chlamydia Kit test immune assay which was used in this study because of easy to be done, cheaper than the NAAT.

Because of ease of specimen management, improved test accuracy, suitability in specimen management, and ease of screening sexually active men and women, the NAAT has largely replaced culture, the historic gold standard for Chlamydia diagnosis, and the non-amplified probe tests [21].

Materials and Methods

This is a cross-sectional study that was conducted at Basra city during the period from 15 February 2018 to 5 May 2019. Patients have unselected attendance to the gynecological outpatient's clinics at the 4 main hospitals at Basra center (Basra maternity and child hospital, Basra general hospital, AL Mawani hospital, and AL-Fayhaa hospital) as these hospitals serve the majority of the population at Basra city. A total of 500 patients were involved, 290 patient was from Basra maternity and child hospital as it is the major hospital in the city, 85 patient from Basra general hospital, 75 patients from AL-Mawani hospital, 50 patients from AL-Fyahaa hospital. Verbal consents were obtained from all participants.

A special questionnaire was designed for the study.

Patients attending the gynecological outpatient clinics with the following symptoms were included (dysuria, pelvic pain, acute pelvic pain), vaginal discharge, post-coital bleeding, intermenstrual bleeding, infertility).

Screening for chlamydia infection was done by using the Chlamydia kit test (Chlamydia Rapid Test Device) which was a rapid immunoassay test and manufactured by (Zhejiang, China 310030).

Analysis of the data was done using the Statistical Packages for Social Sciences (SPSS) version 24. Comparisons between variables and Chlamydia infection were performed by cross tab using the Chi-square test and fishers exact test. The bivariate Odds Ratio (OR) and chi-square test used to examine the association between variables and Chlamydia Trachomatis infection, a multiple logistic regression analysis was used to investigate the effect of predisposing factors on the Chlamydia infection, in all cases p-value <0.05 was considered to be significant.

Results

Table 1: Demographic characteristics of patients under study.

Characteristics	Number	Percentage
Age		
<20 years	111	22.20%
20-40 years	300	60%
>40 years	89	17 .80 %
Parity(among fertile patients)		
P1	55	11%
P2-4	310	62%
>5	135	27%
Level of Education		
Illiterate	300	60%
Primary & secondary school	191	38%
College & high education	9	1.80%
Socioeconomic state		
Low level	305	61%
Middle level	187	37%
High level	8	1.60%
Address		
Basra center	453	90%

According to Table 1, 60% of them were from the age group (20-40) year. 62% were (P2-4). 60% were illiterate and 38% were having primary and secondary school. 61% were from low socioeconomic class and about 90% of patients were living at the central areas of Basra.

Table 2: Clinical features of patients under study.

Symptoms and Signs	Number	Percentage
Acute pelvic pain	309	61.80%

Post coital bleeding	116	23.20%
Intermenstrual bleeding	91	18.20%
Vaginal discharge	226	45.20%
Infertility	16	3.20%
Cervical erosion	125	25%
Mucopurulent discharge	29	5.80%
Pelvic tenderness	76	15.20%
Multiple Complaints	175	35%

The commonest complaint was acute pelvic pain (61.8%), vaginal discharge being the second complaint (45.2%) followed by multiple complaints (35%), cervical erosion (25%) and post-coital bleeding (23.2%).

Table 3: Comparison of symptoms and signs distribution among patients with and without Chlamydia infection.

Symptoms and signs	Chlamydia +ve		Chlamydia -ve		p-value
	N	%	N	%	
Pelvic pain	7	19.40%	302	62%	0.572
Post coital bleeding	5	13.80%	111	22.80%	0 . 316
Inter menstrual bleeding	1	2.70%	90	18 . 50 %	0.479
Vaginal discharge	9	25%	217	44.60%	0.094
Infertility	2	5.50%	14	87.50%	0.061
Cervical erosion	5	13.80%	120	24.60%	0.327
Mucopurulent Discharge	2	5.50%	27	5.50%	0.171
Pelvic tenderness	5	13.80%	71	14.60%	0.034

The majority of patients with positive Chlamydia test had multiple complaints (76.90 %), vaginal discharge was the commonest presenting symptom (69.2%), the second symptom was pelvic pain which was 53.8% while the commonest presentation of patients with negative Chlamydia test were infertility (87.5%) and pelvic pain (26%). Although some clinical features were higher among cases with positive tests compared to cases with negative & vice versa with others but the differences between the 2 groups were statistically not significant.

Table 4: The relationship between Age and Chlamydia infection.

Age	Chlamydia +ve		Chlamydia -ve		Total	Chi-Square	p-value
	N	%	N	%			
<20 years	0	0.00%	111	22.70%	111	6.16	0.046
20-40 years	8	61.50%	292	59.90%	300		
>40 years	5	38 . 40 %	84	17 . 20 %	89		
Total	13		487				

The higher percentage of patients in both groups were among the age group (20-40) years. The percentage of patients with positive tests was higher than those with the negative test in age groups 20-40 and 40 years, these differences were statistically not significant.

Table 5: The relationship between level of education and Chlamydia infection.

Level of Education	Chlamydia +ve		Chlamydia -ve		Total	Chi-Square	p-value
	N	%	N	%			
Illiterate	10	0.769	290	59. 50 %	300	1.68	0.432
Primary and secondary school	3	0.237	188	0.386	191		
College and High education	0	0	9	0.018	9		
Total	13		487		500		

The majority of patients in both groups were from low socio-economic class and the percentage of patients was higher in the test +ve group. While the percentages of patients with -ve test was higher in both middle and higher socioeconomic class and these differences were statistically not significant.

Table 6: The relationship between Chlamydia infection and socio-economic state.

Socio-economic State	Chlamydia +ve		Chlamydia -ve		Total	Chi-Square	p-value
	N	%	N	%			
Low level	10	76.90 %	295	60.50 %	305	150.00	0.472
Middle level	3	23.70 %	184	37.70 %	187		
High level	0	0%	8	1.64 %	8		
Total	13		487				

The majority of patients in both groups were from low socio-economic class and the percentage of patients was higher in the test +ve group. While the percentages of patients with -ve test was higher in both middle and higher socio-economic class and these differences were statistically not significant.

Table 7: The relationship between contraceptive usage and Chlamydia infection.

Contraceptive users		Chlamydia +ve		Chlamydia -ve		Total	Chi-Square	p-value
		N	%	N	%			
Yes	Barrier	0	0%	102	20.90%	102	565	0.016
	Non-barrier	10	5.30%	177	36.30%	187		
No		3	23.07%	208	42.70%	211		
Total		13		487				

Most of the infected patients were non-contraceptive users (23.07). Non-barrier method (5.30%) higher than the barrier method (0%), these differences were statistically significant.

Table 8: The relationship between parity (fertile patients) and Chlamydia infection.

Parity	Chlamydia +ve		Chlamydia -ve		Total	Chi-Square	p-value
	N	%	N	%			
P1	2	15.30%	53	10.28%	55	13.73	0.013
P2-4	2	15.30%	308	63.20%	310		
P5 above	9	69.20%	126	25.80%	135		
Total	13		487				

The percentage of patients with +ve test was higher among those with P5 and more, while the percentage of patients with –ve test was higher among those with P2-4. These differences were statistically highly significant.

Table 9: The relationship between address and Chlamydia infection.

Address	Chlamydia +ve		Chlamydia -ve		Total	Chi-Square	p-value
	N	%	N	%			
Center of Basra	10	76.90%	443	90.90%	453	2.93%	0.087
Rural area	3	23.07%	44	9.03%	47		
Total	13		487				

The majority of patients were from Basra Center but there was no statistically significant effect of an address.

Table 10: Logistic Regression Analysis.

Features	B	p-value	O.R	95% C.I	
				Lower	Upper
Parity	1.886	0.013	6.59	1.98	22.04
Infertility	4.229	0	6.8	4.7	7.93
Non barrier Contraceptive users	0.74	0.035	8.9	0.087	2.6

Discussion

Chlamydia trachomatis infections are the most commonly reported sexually transmitted bacterial infections in the USA, Europe and globally [22.23].

About 43 million new cases were detected in South-East Asia [24]. In this study, the hospital-based prevalence rate among symptomatic patients was 2.6%. In a study done at AL Ramadi city, 3.75% of hospital attendance had new infection [25]. At AL Najaf city 58.2% of hospital attendance were infected [26]. In a study done at Bulgaria, 39.1% of symptomatic females had a positive test for Chlamydia Trachomatis [27], while in a tertiary care center in North India 19.9% of patients were infected [28]. These differences could be due to the differences in the sample sizes. Duration of study and the test used to detect the

infection. More than 50% of Chlamydia Trachomatis infected patients were asymptomatic [25]. All participants in this study were symptomatic because the study was hospital-based. The commonest complaints of infected patients was vaginal discharge (69.2%). followed by acute pelvic pain (53.8%). cervical erosion (38.5%), and post-coital bleeding (38.5%).

In women, the most common clinical features include abnormal vaginal discharge. vaginal bleeding (including bleeding after intercourse). and dysuria [29] chronic pelvic pain and pelvic tenderness (38.5%). While only 4% had chronic pelvic pain as reported by J.S. et al [23].

In this study, the percentages of all clinical features were higher in comparison to other studies [30-32] and this is could be because all participants were having symptoms. Regarding the relationship between age group and Chlamydia infection. the majority (60%) of participants in this study among age groups from 20-40 years and this is similar to that reported by other studies done in Nigeria [33] and North India [28]. This is because those are the most sexually active and the infection is sexually transmitted. For the relationship between the level of education and infection. the highest prevalence of infected and non- infected patients were illiterate and it was higher among infected compare to non-infected patients. This is could be due to their unawareness about the STD and the mode of transmission. In a study done in Nigeria. the highest prevalence was among university students [33].

The majority of infected patients in the current study were from the low socioeconomic class and this is similar to the finding of Okoror et al. [33.] The high-income earners can improve their health care and have access for early treatment of infection.

We reported a statistically significant relationship between contraceptive users and Chlamydia infection with 0% among barrier methods (protected) users. This is similar to that reported by Okoror et al. [33]. Patients of high parity (P5 and more) had a statistically highly significant higher rate of infection and this could be due to higher sexual activity. Because the study was conducted at Basra central hospitals there was no effect of address on the occurrence of infection and the majority of patients in both groups were from Basra central areas.

Conclusion

The prevalence rate of Chlamydia infection is low among the population in the central areas of Basra city compare to other countries. Being infertile or of high parity are among the significant risk factors.

Barrier contraceptive (Condom) significantly reduces the risk of infection and can be used to protect against the transmission of infection.

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