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Effect of chlamydia trachomatis on infertile women

Dr. Sanaa Rajab Hussein

Senior Consultant, Al Khanssa Teaching Hospital, City of Mosul, Iraq

Abstract---Objective: This study was carried out to determine the seroprevalence of Chlamydia trachomatis in hospitalized women has been made. Materials and methods: Chlamydial antigen and anti-chlamydial antibodies were investigated in 145 patients who applied to Al Khanasaa teaching hospitals in City of Mosul-Iraq and were diagnosed as infertile, and in 81 women who gave birth. Results: Endocervical chlamydial antigen in one (0.7%) patient in the infertile group; While anti-chlamydial antibody was positive in 7 (4.8%) patients, endocervical chlamydial antigen and anti-chlamydial antibody positivity were not detected in fertile cases. Conclusion: Seropositivity of 5.5% (seven antibody positive and one antigen positive case) was obtained in 145 infertile women; In infertile cases, antibody positivity intensifies between the ages of 25-35; It was determined that a case with positive chlamydial antigen was 20 years old.

Keywords---chlamydia, trachomatis, infertile.

Introduction

One of the most common sexually transmitted illnesses is *C. trachomatis*, some obligate intracellular bacteria, with an estimated 89 million new cases per year worldwide.(O'Connell & Ferone, 2016) Vaginal discharge, dysuria, postcoital bleeding, intermenstrual bleeding and abdominal pain are some of the symptoms that are associated with genital infection with *C. trachomatis* in women.(Thondaiman, Chaturvedula, & Singh, 2021) Detection and treatment of this type of bacterial infection early on can reduce the risk of consequences in patients, even if the infection is asymptomatic. As a result, large-scale screening programs for patients at risk are recommended by countries.(Fox, Dobler, Marais, & Denholm, 2017) Since 70–80% of *C. trachomatis* infections go unrecognized (Twohig, 2013), prolonged infection may raise the risk for pelvic inflammatory illness, tubal factor associated infertility, and ectopic pregnancy (Lawton et al., 2004; Thomas et al., 2018). All these sequelae can worsen tubal disease, reducing the possibility of conception after tubal flushing. *C. trachomatis* genital infection

is also linked to miscarriage (Molano et al., 2003). There are few data on how genital *C. trachomatis* affects clinical pregnancy and live birth rates in women having tubal flushing. Uncertainty exists over whether screening for current *C. trachomatis* infection can guide appropriate tubal flushing in low-income settings. The study aimed to determine if *C. trachomatis* serum antibodies in women and men affected infertility diagnoses, sperm characteristics, pregnancy rates, and pregnancy outcomes. It also explored associations between *C. trachomatis* and *Mycoplasma genitalium* plasma antibodies and epithelial ovarian cancer and borderline ovarian tumors, as well as the presence of *C. trachomatis* bacteria and other microorganisms in ovarian tissues.

Methods

Clearview (Unipath Ltd., Bedford, United Kingdom) test kit by endocervical swab taken from 145 infertile patients and 81 fertile women who had a normal delivery and had no obstetric problems, who applied to Atatürk University Health Practice and Research Center, Department of Obstetrics and Gynecology Outpatient Clinic. with chlamydial antigen; 5 mL of venous blood was taken and the anti-chlamydial Ig G antibody was investigated by ELISA method with Labsystems (Labsystems Diagnostics Company, Finland) test kit. Primary infertility is defined as no pregnancy occurring despite at least one year of unconcealment. Secondary infertility On the other hand, in case of wanting a child again after a previous pregnancy has occurred, a new pregnancy cannot occur despite at least one year of protection. Infertile patients included in the study; Questions including age, number of pregnancies, number of miscarriages, duration of marriage, and previous systemic diseases were asked and the answers were recorded in the questionnaire. According to the questionnaire form, the patient group was divided into two groups as primary and secondary infertile. Statistical data were evaluated with the SPSS computer program (Ver 6.0, Chicago, Illinois, USA). $p \leq 0.05$ statistically significant accepted. Approval was obtained from the Clinical Research Ethics Committee of Ninevah Health Directorate.

Results

Table 1. Separation of infertile patients in the study group as primary and secondary infertile according to age

Age	Primary infertility	%	Secondary infertility	%
18-24	39	21.2	5	22
25-30	46	26.6	15	28.1
31-35	17	32.4	6	32.7
36-40	9	38.1	8	37.6
Total	111	26.4	34	30.3

Table 2. Distribution of laboratory results of infertile patients in the study group according to patient age groups

Age	chlamydial antigen	chlamydial antibody
18-24	1	0
25-30	0	4
31-35	0	2
36-40	0	1
Total	1	1

Table 3. Distribution of antigen and antibody positivity in primary and secondary infertile

Infertility	Antigen positive	Antibody positive
Primary	0	6
Secondary	1	1

145 patients (18-42 years old) and 81 (18-47 years old) control groups were included in the study. The majority of the patients presenting with infertility problem consisted of patients aged 25-30 (61/145, 42%). In the control group, the 18-24 age group took the first place (40/81, 49%), followed by the 25-30 age group (30/81, 37%) ($p < 0.05$). The patients included in the study were divided into two subgroups as primary and secondary infertile. The distribution of 111 primary infertile patients and 34 secondary infertile patients by age groups is given in Table 1. Accordingly, the mean age of primary infertile patients is 26.6, and secondary infertile patients mean age was 30.3 ($p < 0.05$). Chlamydial antigen was detected only in one (0.7%) patient aged 18-24, whereas chlamydial antibody was detected in four patients aged 25-30 years, two patients aged 31-35 years, and seven (4.8%) patients aged 36-42 years. detected in the patient. There was no antigen and antibody association (Table 2). While the average number of marriages was 6.9 years, the average number of births was one and the average number of miscarriages was two in the patients in the 25-30 age group with the highest chlamydial antibody positivity, the average marriage period was 3.4 years, the average number of births was one and the average in the 18-24 age group without positive chlamydial antibody positivity. The average number of miscarriages was one. In the control group, chlamydial antigen and antibody positivity were not detected in laboratory results. When the distribution of antibodies between the age groups in the study group was examined, no difference was found ($p < 0.05$).

Discussion

Although the hypothesis that *Chlamydia trachomatis* may be associated with genital infections was first put forward by Lindger, The first concrete findings on this subject were found in a study by Heymann in 1910, typical for cervical epithelial cells of women with cervicitis. It was obtained by showing intracytoplasmic inclusions (Koneman, Allen, Janda, Schreckenberger, & Winn, 1997). This agent is first produced in cell cultures and then As a result of the detection of chlamydial antibodies in the serum of patients with the

microimmunofluorescence method, studies have accelerated and extensive epidemiological studies have been initiated (Speroff & Fritz, 2005). Chlamydia infections are becoming increasingly important among sexually transmitted diseases. In western populations, *C. trachomatis* is 3-5 times more common than *N. gonorrhoeae*. The diagnosis of chlamydial infections cannot be confirmed in asymptomatic patients because the microbial pathogen has not been investigated and empirical treatment method has been applied. Although the prevalence of *C. trachomatis* infection in multipartner sexually active women varies according to populations, is known to be high (SIKLIĞI, 2010). In up to 40% of untreated women with endocervical *C. trachomatis* infection, the infection spreads to the upper genital tract, causing tubal obstruction. opens (Felek, 2020). Severe complications such as salpingitis and infertility in women as a result of genital *C. trachomatis* infections can develop. In order to prevent complications, diagnosis and treatment should be made before the infection settles in the upper genital tract. needs to be done. Especially in terms of portership, the identification and examination of risk groups gains importance. brothel today In addition to gonorrhea and syphilis, chlamydia infections should also be investigated in routine screening of women (Öztoklu & Yücel, 2012). Since chlamydial infections usually cause nonspecific clinical symptoms, laboratory diagnostic methods have a very important place in determining the causative agent. Today Each laboratory uses different methods in the diagnosis of chlamydial infections in line with its own possibilities. In the cell culture method, transporting the microorganism without losing its viability and abstracting it from the material requires special methods and is time consuming. This method only It is applied in chlamydia reference laboratories established in certain centers. 95 sensitivity and 98-99% specificity). However, reasons such as low sensitivity (20-50%) and non-specific staining in genital infections negatively affect the value of this approach (Yıldız, Güner, Rota, Gürsoy, & Erdem, 1990). Within the scope of our study, chlamydia antibodies and age groups were compared in patients. chlamydial antibody positivity It was found to be high in the 25-30 age group. This result is the age of marriage and active sexual intercourse in our country. it is also compatible with life (Güner, Rota, Yıldız, & Erdem, 1988). The cases were divided into two groups as primary and secondary infertile, chlamydial antibody positivity and secondary infertility in six primary infertile cases (5.4%). A positivity was found in one infertile case (2.9%). Chlamydial antigen was found to be positive only in one primary infertile case (0.7%) (Table-3). Bakir et al. found EIA positivity in 10.8% (4/37) of the cases with infertility problems, and they found a total sensitivity of 90% and a specificity of 98% for EIA. For this reason, EIA appears to be a very sensitive and specific method, with its high diagnostic value. It is a useful method. Yıldız et al. found positive in 21 (11.17%) of 118 infertile cases. Yergök et al. investigated a total of 50 infertile women, 32 of whom were primary and 18 were secondary, and found IgG positive in 7 (14%) of them. Sirmatel et al. They found chlamydial antibody 34.6% in 52 infertile patients and 30% positivity in 90 infertile women in another study in which they investigated chlamydial antigen. Yavuz et al. found 12.06% chlamydial antibody positivity in 58 infertile patients. Due to the rapid changes in the socio-economic structure of neighboring countries , chlamydial infections are common in our region. We foresee that it may also threaten public health. For this reason, we think that it is important to inform the needs of the diagnosis and treatment of chlamydial infections in

accordance with the structure of the region and to ensure that people comply with health and hygienic rules in reducing the risk.

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