Original Article

Prevalence of Antichlamydia Antibody Status in Infertile Patients

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Abstract

Background: The goal of the study was to evaluate the prevalence of antichlamydia antibody in different subgroups of infertile women.

Material and Methods: The study was performed on 300 women admitted to a university-based clinic.The antichlamydia antibody was assayed via ELISA method.

Results: Positive titer was reported in 32.3 percent of the population under study. Statistically significant differences between positive and negative titres were noted in groups with tubal infertility (p; 0.006) patients with history of PID (p: 0.003) and vaginitis (P: 0.001) and patients with tubal pathology reported on hysterosalpingography (P: 0.027).

Conclusion: According to the results of the study, it seems that there is a strong correlation between Chlamydia trachomatis infection and tubal infertility in Iranian infertile patients.

Keywords: Tubal Infertility, Antichlamydia Antibody, Hysterosalpingography (H.S.G), Pelvic Inflammatory Disease

Introduction

Chlamydia trachomatis (C.T) is a non-motile and intracellular coccoid bacillus which is dependent on the host's adenosine-tri-phosphate (ATP) for its life cycle (1).

Approximately 3-4 million people contact with the organism annually in the USA (2). The prevalence of C.T. in the obstetric and gynaecology clinic varies 2-26 percent (3).

Cervical infection is associated with slight vaginal discharge, bleeding and lower abdominal pain in about %70 of patients but may turn out to be asymptomatic in the other 30%.

If not treated early,the infection can cause catastrophic consequences such as pelvic inflammatory disease and tubal factor infertility. Chlamydia trachomatis (C.T) is most frequently associated with infective tubal damage (4), but exposure to this organism may reduce fertility by mechanisms other than tubal occlusion (5).

CDC and the American College of Gynaecology recommends screening the high risk groups (6) which include infertile patients.

In this study we aimed to evaluate the prevalence of previous Chlamydia trachomatis infection in infertile patients by detecting the antichlamydia antibody using ELISA method. Also, the condition of antibody was determined in different subgroups of infertile patients, taking into account the age, the duration of infertility, type and cause of infertility, history of PID/vaginitis, history of previous IVF failure and also with respect to hysterosalpingography (HSG) and laparoscopy results.

Material and Methods

This is a cross-sectional study performed on 300 infertile patients referred to Vali-e-Asr infertility clinic for work-up and treatment during the year 2004.Sampling was performed randomly in all the patients with a history of more than one year of infertility.

The Antichlemydia antibody titer was determined with ELISA method which is a highly sensitive and specific way for detecting antibody especially in high risk

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groups (7). Titers were regarded as positive or negative according to the accepted laboratory standards and tests were performed in a single laboratory to minimize bias.

Chi-square and Fischer's exact test were used for the statistical analysis.

Results

The prevalence of positive titer was %32.3 in the studied population.

The mean age of patients with positive and negative titers were 28.2 and 30.12 years respectively with no statistically significant difference (P: 0.947) using Maan-Witney test.

The mean duration of infertility was 6.06 and 5.15 years in positive and negative antibody groups respectively, again without any statistical implications using the same method , (P:0.235).

In tubal factor infertility, there was a statistically significant difference between positive and negative titers (P: 0.006).

The HSG results were classified as (1) normal (2) with tubal pathology causing occlusion or (3) with any pathology other than tubal. Table 2 shows the summary of the results with the significant difference in titers only in the group with tubal pathology (P: 0.027).

Using the same classification for the laparoscopy findings however, did not show any statistical difference between groups (P: 0.473) table 3.

The effect of other variable such as causes of infertility, number of previous IVF failure on titer did not show any significant difference.

Table 1: Summary of antibody status results

Variable	Prevalence	Positive Ab titer (%)	Negative Ab titer (%)	P value (%)
Type of infertility:				
Primary	74.7	30.8	69.2	0.331
Secondary	25.3	36.8	63.2	
Cause of infertility:				
Male	44.7	32.8	67.2	0.879
Ovarian	28.3	21.2	78.8	0.112
Cervical	6	44.4	55.5	0.257
Tubal	18	48.1	51.9	0.006
Peritoneal	3.3	50	50	0.302
Unknown	14.7	29.5	70.5	0.669
PID history:				
Positive	1	100	68.4	0.033
Negative	99	31.6		
History of vaginitis:				
Positive	3	100	69.8	0.000
Negative	97	30.2		
History of IVF cycle:				
Once	8.33	34.6	65.4	0.089
Twice	2		100	

Table 1 shows the prevalence of other variables in the studied group and the prevalence of positive and negative results for antibody. The statistical significance of the different titres in each group is also depicted.

Table 2: Result of HSG

Classified	Positive Ab titer (%)	Negative Ab titer (%)
Normal	**28.4**	**71.6**
Tubal pathology	**48.0**	**52.0**
Other pathology	**23.5**	**76.5**
Total	**32.6**	**67.4**

Table 3: Result of laparoscopy

Classified	Positive Ab titer (%)	Negative Ab titer (%)
Normal	30.8	69.2
Tubal pathology	52.6	47.4
Other pathology	44.0	56
Total	43.9	56.1

Discussion

In our study, the major role of Chlamydia trachomatis in causing tubal pathology is again confirmed. Our results are agree with other studies in literature emphasizing the importance of previous infection with the organism as a major cause of tubal incompetence.

The prevalence rate of positive Chlamydia antibody titer in our study (P: %32.3) showed quite a high rate of infection compared to other settings with infection rates of 2-26 percent according to the patient groups (3). As Cates and Wasserheit have reported.

This may act as a contribution factor to many couples' infertility since the hydro salpinges caused by acute tubal infection can lead to future malfunctions without overt occlusion detectable in HSG (5).

The other implication of the high prevalence noted in our study argues in factor of instituting prophylactic therapy with Azithromycine for all infertile couples even before starting the primary work-ups (8). This, of course, should be carefully studied in the proper setting considering the cost-benefit ratio.

Laparoscopy is considered the gold standard for the evaluation of tubal disease, but it is an invasive and costly procedure. Chlamydia trachomatis antibody is simple and inexpensive and causes minimal inconvenience to the patient. HSG is less invasive than laparoscopy but is of limited use for detecting tubal patency because of its low sensitivity, although its high specificity makes it a useful test in confirming the presence of tubal obstruction (9). Its high false positive outcome is thought to result from tubal spasm, dissimilar filling pressure, high contrast viscosity and faulty technique (10). When HSG is combined with C.T. antibody titers, the false positive rate is significantly lowered (11). Chlamydial antibody titers can not be used as the sole test for tubal patency. Patients may have an unrelated cause of adhesions (e.g. endometriosis or salpingitis due to another microorganism). Also sensitivity of the antibody test is critical, since IgG titers can decrease over time (12). Regarding the above mentioned difficulties in the diagnosis of tubal patency, it has been proposed that the method of choice for tubal assessment should be performed after the results of antibody of C. trachomatis have been determined as this would prevent a significant number of unnecessary laparoscopies (13).

Conclusion

In this study we realized that chlamidyal infection as a sexually transmitted disease (STD) is as common as the western country in Iran. And it may plays an important role in causing tubal infertility.

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