Chlamydial Antigen in Infertile Women

Theerupally Jaya[1], Senadhipathi Shakuntala[1]

ABSTRACT

Introduction: Chlamydia trachomatis is a widely recognized sexually transmitted pathogen which is asymptomatic initially but can lead to long term complications like infertility. The present study was undertaken to study role of chlamydia trachomatis antigen in infertile women attending the tertiary care hospital during the period of six months from April 2016 to September 2016.

Material and methods: 30 women of primary and secondary infertility constituted the test group. The control group consisted of 30 women attending the gynaecology outpatient without signs and symptoms of chlamydia trachomatis. They were tested for chlamydia antigens by enzyme linked immunosorbent assay (ELISA).

Results: Chlamydia trachomatis tested positive in 6 (20%) in infertile patients (hitherto referred to as Test Group) and 3 (10%) in fertile women (hitherto referred to as Control Group). The antigen detection was significantly high in infertile patients when compared to control group. Primary infertile patients were 20.8% positive when compared to 16.6% in secondary infertile women.

Conclusion: A significantly high rate 6 (20%) of chlamydia trachomatis infection was found in infertile women compared to control group (10%). Hence, screening is needed for detection, early therapeutic intervention and prevention of infertility.

Keywords: Chlamydia Trachomatis, Infertility, ELISA

INTRODUCTION

Chlamydia trachomatis is currently acknowledged as being one of the most common sexually transmitted pathogens. It causes cervicitis, endometritis and salpingitis in women. But in most cases the patients are asymptomatic or have only mild symptoms which go unnoticed with minimal patient awareness until it leads to severe tubal scarring, chronic salpingitis and distal obstruction and severe peritubal adhesions(PID).[1] Hence, the need for prevention of infection or if infected, early diagnosis by ELISA and prompt treatment to prevent infertility due to this pathogen.[2] In this era of modern science where treatment of infertility is improving by leaps and bounds, prevention of infertility due to chlamydia has a significant place by early detection and treatment before the sequalae set in.

The present study aims to detect chlamydial infection in infertile women attending a tertiary care hospital (Govt. Maternity Hospital, Sultan Bazar, Hyderabad) by ELISA (Enzyme Linked Immunosorbent Assay) for chlamydial antigen. The reported sensitivity (70-95%) and specificity is (94-99%) in high risk population. Like direct fluorescent antibody test, ELISA is less accurate in low prevalence population. ELISA is better suited than culture, to screening because large number of specimen can be easily processed. The micro immunofloroscence test for chlamydia trachomatis antigen is more sensitive but is generally available only in research labs.

MATERIAL AND METHODS

Study was done in obstetrics and gynaecology outpatient department at Government maternity hospital. Infertile women attending obstetrics and gynaecology outpatient department at Government maternity hospital, Sultan Bazar during a period of six months from April 2016 to September 2016 were included in the study. Thirty women attending the gynaecology outpatient without signs and symptoms of chlamydia trachomatis of similar age group constituted the control group. Patients with history of antibiotic treatment in the previous two months were excluded from the study. An informed consent and ethical approval was taken before the start of study. Infertility is defined as the inability to conceive after more than 1 year of regular intercourse without any contraceptive use.

Method: Testing for chlamydia trachomatis antigen by monoclonal based immune chromatographic assay. Excess mucus from the endocervical canal is removed with a swab. A sterile swab is introduced into the endocervical canal until most of the tip is no longer visible. The swab is withdrawn carefully without touching the vaginal walls and placed in sterile plastic tube and refrigerated at 2-8 centigrade and tested within 72 hours.

The swab is immersed into the extraction reagent (14 drops) and the contents are swirled thoroughly for 10 seconds to ensure adequate mixing of reagents with the swab specimen and left at room temperature for 10 to 15 minutes. 7 drops of the extract is added to the sample window of the test card. The reaction is allowed to take place for 10 to 20 minutes at room temperature.

Negative: Only one pink or rose colored band appears in the control well of the test card demonstrating correct performance of the test. No clearly distinguishable pink or rose colored band in the control well indicates no chlamydial antigen was present.

Positive: In addition to the pink or rose colored band in the control well another band appears in the test well indicating chlamydial antigen.

STATISTICAL ANALYSIS

Microsoft office 2007 was used for the statistical analysis. Descriptive statistics like mean and percentages were used to interpret the data.

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Age group (in years)	Infertile group			Fertile group		
	No	+ve	Percentage of +ve cases	no	+ve	Percentage of +ve cases
15-24	13	4	30.7	11	1	18.8
25-34	15	2	13.3	15	2	13.3
>35	2	-	-	4	-	-
Total	30	6	20	30	3	10

Table-1: Chlamydia antigen in infertile women in study

Chlamydia trachomatis antigen	Infertile women		Fertile women	
	Primary	Secondary	Primary	Multi
Number Tested	24	5	16	14
Number Positive	5	1	1	2
Percentage of +ve cases	20.8	16.6	6.25	14.5

Table-2: Occurrence of chlamydia trachomatis antigen with type of infertility and gravidity

	% Positive in infertile women	% Positive in fertile women
Present study	20%	10%
Sharma et al[5]	26%	10%

Table-3: Occurrence of chlamydia trachomatis antigen in infertile and fertile women

Region	Infertile group			Fertile group		
	No	+ve	% Positive	No	+ve	% Positive
Urban	23	5	21.7	19	2	10.50
Rural	7	1	14.5	11	1	9.09

Table-4: Occurrence of chlamydia trachomatis antigen according to region

RESULTS

Chlamydia trachomatis was detected in in 6(20%) in infertile patients (hitherto referred to as Group I) and 3 (10%) in fertile women (hitherto referred to as Group II). The antigen was detected highest in women aged 15-24 in Group-I (30.7%) compared to 25-34 (13.3%), whereas in Group-II it is 18.8% in women aged 25-34 (table-1).

Primary infertile patients have 20.8% when compared to 16.6% in secondary infertile women. occurence In fertile women primi gravida 6.25% tested positive and multi gravida 14.5% were positive (table-2).

DISCUSSION

High frequency of asymptomatic genital chlamydial infections in women of reproductive age group necessitates identifying the reservoir of infection responsible for continued transmission.[3] Direct detection of Chlamydia of trachomatis antgen by ELISA in clinical samples has been reported to be a relatively simple and rapid technique that has sufficient sensitivity and specificity in the diagnosis of chlamydial infections.[4] Several studies have demonstrated that untreated and undetected cervical chlamydial infection can ascend through endometrium to produce silent salpingitis and infertility as its sequalae.

In the present study, infertile women had a significantly higher carriage of chlamydia trachomatis antigen which indicates a silent or a persistent infection in them. Our results are comparable to those published by Sharma et al.[5]

Positive Percentage in the present study in infertile women is 20% whereas in Sharma et al it is 26%. The positive percentage in fertile women in our study is 10% which is identical to that observed by Sharma et al (table-3).

Women aged 15-24 years were 30.7% positive compared to 13.3% in the age group of 25-34 years. The high incidence could be attributed to increased exposure of cervical columnar epithelium physiologically, a high risk taking behavior and inconsistent usage of barrier methods.[6] This is in conformity with results published by Lyn Finelli etal[7] who used univariate and multivariate methods of statistical analysis. In univariate analysis age 24 years, being unmarried and having gonorrhea were associated with a significant increase in odds of infection. In multivariate analysis in STD clinics, age 24 was the only variable significantly associated with chlamydial infection. In the fertile group 18.18 % were positive in 15-24 age group. In the age group 25-34 years, it is 13.3%. This could be due to the fact that younger women who had chlamydial infection were infertile, contributing to the increased incidence in group-I.

In the present study, in Group I patients from urban areas had a 21.7 positivity compared to 14.5% in patients from rural areas. This is in conformity with the results published by Lyn Kinelli al[7] who found in Family Planning Clinics and College Health Services, there was significant correlation between black ethnicity and attending an Urban Clinic (table-4).

A higher number of women with primary infertility had chlamydial antigen positivity when compared to secondary infertility. This data is comparable to that published by ICMR in 1992. This data is also comparable with that published by Sharma et al.[5]

limitations of the study

Antigen detection positive cases need to be confirmed by culture which could not be done because it is expensive and available only in few research centres.

The study is a small one and some errors in results might have crept in due to his factor.

CONCLUSION

Asymptomatic infertile women have a significantly higher chlamydial antigen positivity than the control group. The control group itself has high chlamydial antigen positivity which needs attention in view of its sequalae, especially regarding infertility and ectopic gestation. Since universal screening is not possible because of economic constraints, alteast high risk groups like people attend sexually transmitted disease clinics, abortion clinics and infertility clinics, etc. need to be screened and treated before this miniature organism show its dastardly effect. Infected patients need to be treated with doxycycline or tetracycline for 7 days in uncomplicated cases. Failure after treatment of genital diseases with tetracycline indicates poor compliance or reinfection. The sexual partner should be screened and treated.

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