

STUDY OF PREVALENCE OF CHLAMYDIA INFECTION IN WOMEN WITH ECTOPIC PREGNANCY ATTENDING A TERTIARY CARE HOSPITAL

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Abstract

Background: Chlamydia Trachomatis is the most common cause of sexually transmitted bacterial infection worldwide. Females share the major burden of the disease. It can present with acute cervicitis, acute urethral syndrome, pelvic inflammatory disease (PID), postpartum endometritis, ectopic pregnancy and tubal infertility. **Materials and Methods:** This was a prospective observational study done over a period of 2 years in a busy tertiary care Maternity Hospital in North India from Mar 2021 to Mar 2023 to assess the prevalence of chlamydia trachomatis infection in patients with ectopic pregnancy. Females who presented to our hospital with ectopic pregnancy were screened for the presence of Chlamydia trachomatis using IgG antibodies test of venous blood. In addition a control group of non-pregnant females was also screened using the same test. **Result:** Out of a total of 40 consecutive patients with ectopic pregnancy presenting to our hospital, 12 (30%) screened positive for Chlamydia IgG as compared to 7.5% in controls. Among the Chlamydia trachomatis IgG positive females, 45.5% were in the age group of 26-30 years and 33.3% were in the age group of 31-35 years. Most (66.66%) of women with chlamydia IgG positive were from rural areas. **Conclusion:** This study shows that there a significant number of females presenting with ectopic pregnancy have evidence of Chlamydial trachomatis infection.

INTRODUCTION

Chlamydia are small gram-negative, spherical or ovoid obligate intracellular bacteria that are ubiquitous. Intracellular parasitism of Chlamydia differentiates it from other bacteria. Chlamydia Trachomatis is the most common cause of sexually transmitted bacterial infection worldwide.^[1] Females share the major burden of the disease. Recent studies from India have revealed the prevalence of Chlamydia Trachomatis in young females to be 43% in the gynecology OPD and 18.9% in patients with sexually transmitted diseases.^[2,3] Asymptomatic and untreated genital infections have serious implications on the reproductive health of women. The most important clinical manifestations of Chlamydia trachomatis infection in women include acute cervicitis, acute urethral syndrome, pelvic inflammatory disease (PID), postpartum endometritis, ectopic pregnancy and tubal infertility.^[4] It is also associated with 3 to 6 fold

increase in transmission of HIV and is considered a risk factor for development of cervical carcinoma.^[5]

It has also been isolated from the cervix of up to 36% of women with acute PID and in 86% from fallopian tubes in women with acute PID.^[6,7] A study reported that 80% of women with acute salpingitis had Chlamydia trachomatis antibodies, and that 37% had a 4-fold change in IgG antibody titer.^[8] Women with PID have a 4 to 7 fold increased risk of infertility, and each episode of PID approximately doubles the risk.^[8]

Ectopic pregnancy is a relatively common condition among women of childbearing age and comprises 1–3% of reported pregnancies. Tubal factor infertility is one of the main causes of involuntary childlessness in women.^[9] Sexually transmitted diseases (STDs) are believed to play an important role in the increase in infertility, particularly when it is caused by tubal factors.^[10] Female infertility is attributed to the tubal factors in about 14–38% of the cases. The tubal damage is presumed to be secondary to salpingitis, with a two-third of the

subjects being asymptomatic while the remaining one third present with symptoms.^[7-10]

Several studies have demonstrated that tubal factor infertility was significantly associated with the serum antibodies to Chlamydia trachomatis, which resulted in infertility.^[11] A better understanding of the role of persistent Chlamydia trachomatis infection in tubal factor subfertility may be useful in optimizing the fertility work-up by incorporating screening tests for persistent Chlamydia trachomatis infection, aiming to accurately estimate the risk of persistence and identify those women who are at highest risk of tubal pathology.

MATERIALS AND METHODS

This was a prospective observational study done over a period of 2 years in the Department of Obstetrics and Gynecology, Government Medical College, Srinagar, Jammu and Kashmir. The study was conducted after obtaining the ethical clearance from the Institutional Ethical Committee. All consecutive females who presented to the hospital during the study period with ectopic pregnancy were enrolled in the study after written informed consent was obtained. In addition to a detailed history, clinical examination and routine laboratory investigations, all enrolled females were tested for IgG antibodies to Chlamydia trachomatis in venous blood using the Calbiotech Chlamydia IgG kit based on ELISA. In addition to this study group comprising of females with ectopic pregnancy, a control group comprising of non-pregnant females was also enrolled. This group was also tested for

IgG antibodies against Chlamydia trachomatis in the venous blood using the same kit. Comparison between the study group and control group was done using Statistical Package for Social Sciences (SPSS Ver. 20.0). Chi-square test was used to compare the sero-prevalence of Chlamydia trachomatis infection across the patient groups. A “p value” of less than 0.05 was considered statistically significant.

RESULTS

A total of 80 patients were taken, 40 patients in study group and 40 patients in control group. As per the study it was evident that prevalence of chlamydia trachomatis infection was more in patients with ectopic pregnancy (30%) as compared to 7.5% in comparable non pregnant patients [Table 1]. The infection was more prevalent in the age-group of 26-30 years followed by the age group 31-35 years [Table 2]. Most of the patients (66.66%) in our study belonged to rural areas as compared to urban areas (33.33%) [Table 3]. In our study, 33.33% of patients positive for chlamydia IgG had no formal education, 33.3 % had schooling below secondary levels, 16% had schooling till higher secondary level and 16% had attended college [Table 4]. In the study group, 33.33% women were from lower socioeconomic class, 33.33% from lower middle class and only 8.3% were from upper socio-economic class based on modified Kuppuswamy scale [Table 5].

Table 1: Seropositivity for IgG against Chlamydia trachomatis in study (patients with ectopic pregnancy) and control group (non-pregnant females).

	Study group	Control Group	P value
N	40	40	
Seropositive for IgG against Chlamydia trachomatis	12 (30%)	3 (7.5%)	< 0.001

Table 2: Age wise distribution of chlamydia trachomatis IgG positive cases

Age (Years)	Frequency	IgG +ve	Percentage
20-25	08	1	12.50
26-30	11	5	45.45
31-35	12	4	33.33
36-40	9	2	22.22

Table 3: Rural and urban distribution of chlamydia trachomatis IgG positive cases.

Place of residence	Number	Percentage
Rural	8	66.66%
Urban	4	33.33
Total	12	100

Table 4: Education status of chlamydia trachomatis IgG positive cases.

Education status	Number	Percentage
ILLETRATE	4	33.3%
BELOW 10TH	4	33.3%
10-12TH	2	16%
>12TH	2	16%
Total	12	100

Table 5: socio-economic status of chlamydia trachomatis IgG positive cases.

Socio-economic status	Number	Percentage
LOWER CLASS	4	33.33%
LOWE MIDDLE CLASS	4	33.33%
MIDDLE CLASS	2	16%
UPPER MIDDLE CLASS	1	8.33%
UPPER CLASS	1	8.33%
Total	12	100

DISCUSSION

Chlamydia trachomatis is one of the most prevalent sexually transmitted infection worldwide.^[12] Long term sequelae of Chlamydia trachomatis infection include pelvic inflammatory disease, tubal factor infertility and increased risk of ectopic pregnancy. Chlamydia trachomatis is a prevalent and virulent pathogen in the genital tract of sexually active women. Although the infection of lower genital tract caused by Chlamydia trachomatis is usually asymptomatic, it can however spread into the upper genital tract to produce serious complications such as pelvic inflammatory disease, tubal adhesions and tubal factor infertility.^[13] The first direct evidence of an association of Chlamydia trachomatis in acute salpingitis was documented by Eliard et al who isolated Chlamydia trachomatis from tubal specimens in two of twenty two women with acute salpingitis undergoing laparoscopy. Chlamydia trachomatis is a mucosal pathogen that establishes infection within epithelial cells in both the lower and upper genital tract of women.^[5-10] Up to 70% of women with Chlamydia trachomatis infection have silent infection and in the majority of cases with such an infection, the disease is self-limited.^[5-10] In our study, out of 40 patients with ectopic pregnancy, 12 tested positive for Chlamydia trachomatis IgG i.e. 30% of patients with ectopic pregnancies were positive for chlamydia IgG. Erik K Khilstorm and colleagues,^[14] also conducted a study in women to find out the prevalence of Chlamydia trachomatis IgG antibodies in females with ectopic pregnancies.^[14] In their study, 33% of women with ectopic pregnancies had positive chlamydia IgG antibodies. Similar results were present in the study done by EL Guindy, Rabei N where they also found that about 30% of females with ectopic pregnancies were positive for Chlamydia trachomatis IgG.^[15] In our study, the women positive for Chlamydia trachomatis IgG in the ectopic group, 12.5% were in the age group of 20-25, 45.4% in the age group of 26-30 years, 33.3% in the age group of 31-35 years and 22.2% in the age group of 36-40 years. Similar results were found by Mst Khalida et al 16 where they found that 60% of women with ectopic pregnancies were in the age group of 20-25 years and 26.7% were in the age group of 26-30 years. In our study, 66.66% of women who tested positive for Chlamydia trachomatis IgG were from rural areas and 33.33% were from urban areas. Kosambly et al,^[17] did a study to see the demographic variation in the prevalence of Chlamydia trachomatis infection.

They found that 53% of women were from rural areas and 47% of women were from urban areas. In our study, out of 12 women who were positive for Chlamydia trachomatis IgG, 66.6% of patients were below 10th standard in their education status and 34.4% women had education status above 10th standard. In the present study, out of all the women who were positive for Chlamydia trachomatis IgG, 33.33% belonged to lower socioeconomic class, 33.33% were from lower middle class, 16% were from middle class, 8.33% were from upper middle class and 8.33% belonged to upper class, based on modified Kuppuswamy scale.

Our study has certain strengths and limitations. Ours is the only tertiary care maternity hospital with a huge catchment area with a catering population of almost 10 million. This makes our study population representative of the area that our hospital caters to. The main limitation of our study is the referral bias to our hospital. Our hospital receives referred cases with high patient disease severity scores and complications. Many patients especially those without complications may not be referred to us at all. These patients may be under represented in our study.

CONCLUSION

Our study has shown that a significant proportion of women with ectopic pregnancy in Jammu and Kashmir have serological evidence of infection with Chlamydia trachomatis. Patients presenting with ectopic pregnancy may therefore be screened for these infections for proper management.

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