

ORIGINAL ARTICLE

## Prevalence of Chlamydia Trachomatis infection in women with Pelvic Inflammatory Disease, Mucopurulent Cervicitis and Infertility in Hyderabad

B.M Shankar Venkatesh<sup>1</sup>, N.Vivekanand<sup>2</sup>, Rajeshwar Rao<sup>3</sup>

1. Associate Professor of Microbiology, Rajiv Gandhi Institute of Medical Sciences Adilabad.
2. Associate Professor of Pathology, Rajiv Gandhi Institute of Medical Sciences (RIMS) Adilabad.
3. Associate Professor of Microbiology, Osmania Medical College, Hyderabad.

### Abstract

**Background:** Chlamydia Trachomatis one of the most common sexually transmitted pathogens untreated Chlamydia may develop PID. Chlamydia may also result in adverse outcomes of pregnancy, including Neonatal conjunctivitis and pneumonia. : This study was taken up to find the incidence of Chlamydial infection in women with Pelvic Inflammatory Disease [PID], Mucopurulent Cervicitis [MPC] and Infertility, at Government Maternity Hospital, Nayapool, Osmania General Hospital/ Osmania Medical College, Hyderabad. **Methods:** A total of 270 women attending OP units over a period of one year were screened for the present study. All samples were screened for IgG antibodies to Chlamydia Trachomatis using the Trinity Biotech captia Chlamydia IgG kit based on ELISA. **Results:** Among 270 women that were included in the study, 80 women were with MPC, 80 women with PID, 80 women with infertility, 30 were healthy women attending OP for IUD insertions, out of 270 women 70 cases were positive for Chlamydia (29.1%). In women with PID, the antibodies were positive in 36 cases (51.4%) In women with MPC, the antibodies were positive in 22 cases (31.4%). In women with infertility, the antibodies were tested positive in 12 cases (17.2%). High positivity was shown in the age group 20 – 30 years. **Conclusion:** Chlamydial infections are common infection especially in young women. Presence of Chlamydia Trachomatis should be considered as one of the important risk factor in development of Pelvic Inflammatory Disease and Infertility.

**Keywords:** Chlamydia Trachomatis, Pelvic Inflammatory Disease [PID], Mucopurulent Cervicitis [MPC], Infertility

**Address for correspondence:** DR. B.M Shankar Venkatesh, Associate professor of Microbiology, Rajiv Gandhi Institute of Medical Sciences (RIMS). Adilabad email: [shanker.bunde@gmail.com](mailto:shanker.bunde@gmail.com) Mobile: +9199489253754

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### Introduction

Chlamydiae are small gram-negative eubacteria 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 sexually transmitted STD patients. [2, 3] Asymptomatic

and untreated genital infections have serious implications for the reproductive health of women. Chlamydia Trachomatis can cause mucopurulent cervicitis, urethritis and endometritis in women they are also associated with 3-6 fold increase in transmission of HIV and considered as a risk factor for development of cervical carcinoma. [4] Mucopurulent cervicitis can lead to complications by intraluminal spread of organism from cervix to produce salpingitis and Pelvic Inflammatory Disease (PID). It has been recovered from 30-60 per cent cases of salpingitis and PID patients in India. An estimated 15-40 per cent of women

with cervical chlamydial infections develop PID. Twenty per cent of women who develop PID become infertile, 18 per cent develop chronic pelvic pain, and 9 per cent have a tubal pregnancy.<sup>[5-7]</sup> A number of screening programs are initiated to reduce morbidity in the individuals by early detection and treatment and to decrease overall infections in the population.<sup>[8,9]</sup> We in the present study tried to find the prevalence of Chlamydia Trachomatis in urban South Indian population of Hyderabad.

## Materials & Methods

This study was taken up to find the prevalence of Chlamydial infection in women with Pelvic Inflammatory Disease [PID], Mucopurulent Cervicitis [MPC] and Infertility, in Hyderabad. A total of 270 women attending OPD units in the Govt. Maternity Hospital, Nayapool, Osmania General Hospital/ Osmania Medical College Hyderabad over a period of one year were screened for the present study.

They were categorized, based on clinical diagnosis into 3 groups comprising of 80 patients each.

### Group I:

Women with pelvic inflammatory Disease(PID)

### Group II :

Women with mucopurulent Cervicitis (MPC)

### Group III:

Women with infertility.

### Group IV:

Healthy women

30 women who attended the Out Patient Department for IUD insertions served as control. Serum samples from all these women were collected. A note of patient profile was made which included name, age, occupation, socio-economic status, religion, material status, occupation of husband and parity. Blood samples were collected and all samples were screened for IgG antibodies to Chlamydia trachomatis using the Trinity Biotech captia Chlamydia IgG kit based on ELISA.

## Results

The present study involved 270 women aged 20 - 40 years. Among these were 80 women were diagnosed with PID, 80 Women having MPC, 80 women with Infertility and 30 healthy women were taken as control, from the Out

Patient of Govt. Maternity Hospital, Nayapool Hyderabad. Inclusion criteria: i) Age 20-40 years. ii) Sexually Active iii) without any other significant disease iv) Those who were willing to participate in the study. All Procedures followed in this study are in accordance with the ethical standard laid down by ICMR's Ethical guidelines for biomedical research on human subjects (2000). A written consent was taken from all the participants. Ethical permission from Institutional Ethical Committee was obtained. The overall positivity for Chlamydia in all samples was 25.9% (70 cases positive) out of 270 samples.

Table 1 shows the number of positive cases and total number of cases for Chlamydial infections in various groups. It shows that highest incidence of Chlamydial infections 51.4% were found in women with Pelvic Inflammatory Disease [PID], followed by the mucopurulent Cervicitis [MPC] and 17.2% of females complaining of infertility were found to positive for Chlamydial infection and the Control group (IV) women were all found to be negative for Chlamydial infections.

Table 2 shows the age wise distribution of the cases which were found to be positive for Chlamydial infections. Highest incidences of positive cases were found in younger age group of 20-25 years and 26-30 years having 12 (48%) of positive cases each. The two groups combined had 24 cases which amounts to 30% of Total 80 cases examined.

Table 3 shows the occurrence of positive Chlamydial infections in women with mucopurulent discharge. Highest incidence of positive cases in mucopurulent discharge were found in 26-30 years of age group having 10 out of total 35 (28.5%) of positive cases. In age group of 36-40 there were two women examined but none were positive for Chlamydia Infection. Chlamydial infections were also found to be commonly associated with Infertility cases. Whereas highest incidence was seen in younger age group of women 20-25 and 26-30 age group having 16 positive cases each of 25 per group of female examined table 4.

**Table 1:** Group wise number of positive cases for Chlamydial infections.

Group	Women with	Total	No. of positive cases	percentage
I	PID	80	36	51.4%
II	MPC	80	22	31.4%
III	Infertility	80	12	17.2%
IV	Control	30	00	0%

**Table 2:** showing age wise distribution of Chlamydial Infection in women with Pelvic Inflammatory Disease.

SL. No.	Age in years	Total No. of women investigated	No. of positive cases	Percent of positive cases
1	20-25yrs	25	12	48
2	26-30yrs	25	12	48
3	31-35yrs	25	11	44
4	36-40yrs	5	01	20
	Total	80	36	45

**Table 3:** showing age wise distribution of Chlamydial Infection in women with mucopurulent discharge

SL. No.	Age in years	Total no. of women Investigated	No. of positive cases	Percent of positive cases
1	20-25yrs	25	7	28
2	26-30yrs	35	10	28.5
3	31-35yrs	18	5	27.7
4	36-40yrs	02	00	0
	Total	80	22	27.5

**Table 4:** showing age wise distribution of Chlamydial Infection in women with Infertility

SL. No.	Age in years	Total no. of women investigated	No. of positive cases	Percent of positive cases
1	20-25yrs	25	4	16
2	26-30yrs	25	4	16
3	31-35yrs	20	3	15
4	36-40yrs	10	1	10
	Total	80	12	15

## Discussion

Chlamydia trachomatis is considered as a leading cause of PID and female infertility worldwide and more than 13.5% of women less than 25 years old infected with Chlamydia trachomatis have lower genital infection.<sup>[10]</sup> Most important sign of Chlamydial infection is discharge from cervix. Women with C. trachomatis infection are usually present with classical symptoms of discharge, dysuria and soreness. Most infections in women are present with mucopurulent cervicitis, endometritis, chronic pelvic pain, salpingitis and urethral syndrome. The present study was done in order to find the prevalence of Chlamydia trachomatis infection in Urban Hyderabad. Out of 270 women examined 240 were from Group I, II, III

of 80 women each. The control group who were the women taken who visited for insertions of IUD were all negative for C. trachomatis. We found 70 samples positive for C. trachomatis infections which is about 25.9% prevalence. A study by Malhotra M et al; Prevalence of sexually transmitted infections in patient attending a tertiary care hospital in North India found 30-60% prevalence of C. trachomatis in patients with PID and salpingitis.<sup>[11]</sup> We in the present study found the prevalence of 51.4% of patients with PID positive for C trachomatis infection. It is estimated that 15-40% of women with cervical chlamydial infections develop PID.<sup>[12]</sup> A study by Navjyot K. Vidwan et al; prevalence and risk factors for *Chlamydia trachomatis* infection in pregnant women in Vellor South India found very low prevalence of

0.1% Chlamydia trachomatis infections. Other study by Patel LA et al; has revealed the prevalence of C trachomatis infections to be 23 per cent in gynaecology outpatient department and 19.9 per cent in STD patients.<sup>[13]</sup> There is a definite role of C. trachomatis infection in cervical lesions and it has been area of study for researchers.

Data available shows elevated frequency rates of chlamydial infection in women with genital discharges with cervicitis (20-40%).<sup>[14]</sup> In our study we found 27.5% positive cases for C. trachomatis infection in women with mucopulent cervicitis which agrees with the previous research. In a similar study by Prathiba G et al for prevalence of Chlamydial infections in women in Chennai found a slightly lower (12.2%) prevalence of C. Trachomatis infection in women with cervical discharge.<sup>[15]</sup>

Chlamydial PID is single most important preventable cause of infertility. It is estimated that approximately 3% of women with Chlamydial genital tract infection develop infertility. This study also showed 15% cases positive for C. Trachomatis infection in females who reported of infertility. There is now growing evidence to suggest the recurrent PID increases risk as first reported in Scandinavian Cohort study with laproscopically confirmed salpingitis that was done by Westro M et al, where they found that each episode of salpingitis roughly doubled the risk of tubal factor with multiples (8% after 1 episode, 20% after 2 episodes, and 40% after 3 episodes).<sup>[16]</sup>

Similarly a study by Ness et al in which higher titers of antichlamydial antibodies at follow-up and recurrent PID, showed that these factors were associated with longer time to pregnancy.<sup>[17]</sup> One of the findings of this study was majority of cases were within younger age group of females out of 160 cases examined in between 20-30 years age group 30% were found to be positive for Chlamydia. There is evidence from other studies which showed higher incidence of positive Chlamydia infections in younger age groups. The probable explanation was that because of anatomic differences in cervix in younger women where there is squamo-columnar junction a primary host target for C. trachomatis is more everted and exposed.<sup>[18]</sup> C. Trachomatis infection can lead

to several complication including PID and infertility.

## Conclusion

Within the limitations of the present study it can be concluded that Chlamydia trachomatis is an important pathogen causing several genitourinary complications. Chlamydial infections are common infections especially in young women. Presence of Chlamydia trachomatis should be duly considered as one of the important cause factor in women who develop Pelvic Inflammatory Disease and Infertility.

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