

Prevalence of genital *Chlamydia trachomatis* at a Tertiary Care Hospital in North India: A 10-year observational study

Sir,

Chlamydia trachomatis (CT) is one of the most common pathogens worldwide that causes sexually transmitted infections (STIs). Although as much as 61% of women and 68% of men who are infected with CT develop asymptomatic infections, in the remaining population, this bacterium can cause a broad spectrum of genitourinary infections and associated sequelae.^[1]

The aim of this study was to determine the prevalence of CT in a symptomatic heterosexual population in Delhi during a period of 10 years. Between January 2010 and December 2019, all heterosexual male and female patients with genital discharge attending an STI clinic of a tertiary care hospital were screened for CT infection. The testing of CT was performed on the first void urine collected from men and endocervical swabs collected from women using an in-house polymerase chain reaction (PCR) method targeting the cryptic plasmid.^[2] As the data extracted contained no patient identifiers, consent from each individual included in the study was not required.

A total of 2617 outpatients (946 males and 1671 females) were included. The average age of men and women screened for CT was 33.7 years (standard deviation [SD]: 9.2 and range: 18–56 years) and 32.8 years (SD: 8.4 and range: 18–52 years), respectively.

The overall prevalence of CT in the study population was 10.4% (271/2617) (range: 5.9%–14.3%) [Figure 1a]. The number of samples tested annually from 2010 to 2019 are 204, 169, 201, 209, 215, 217, 328, 404, 342, and 328, respectively. The overall prevalence of CT was 10.8% in males and 9.9% in females, respectively [Figure 1b].

The distribution of CT according to age groups is shown in Figure 1c. The age-specific prevalence showed that women aged 18–30 years and men aged 31–40 years had the highest prevalence of CT. The differences between positive and negative groups of CT regarding average age for both men and women were statistically significant ($t = 10.92$, $P = 0.001$; $t = 13.53$, $P = 0.002$).

The rate of CT infection was not significantly different during 2010–2019 ($\chi^2 = 17.224$; $P = 0.159$). Linear regression analysis indicated that CT did not increase from 2010 to 2019 ($\chi^2 = 16.224$; $P = 0.110$).

STIs are a major public health problem worldwide. The prevalence of CT and the distribution among populations at differing levels of risk of exposure remain largely unknown. In our study, the prevalence of CT was found to be about 10.4%. From the literature review, CT prevalence in Indian populations attending STI clinics was found to range from 10% to 50%.^[3] These varying values of CT prevalence can be attributed to the different population

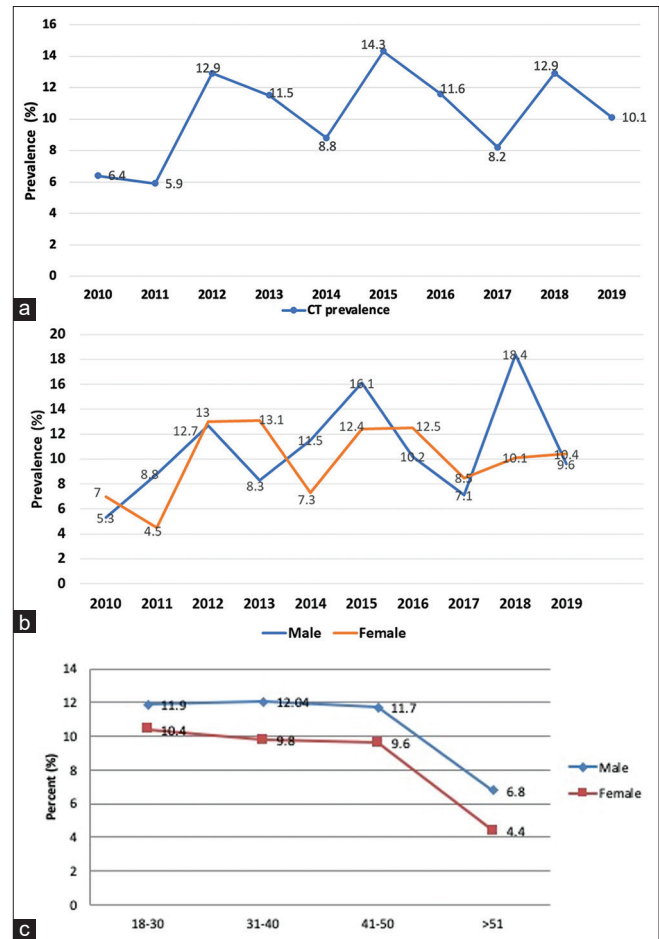


Figure 1: (a) The overall prevalence of CT by calendar year. (b) The prevalence of CT in males and females by calendar year. (c) The prevalence of CT in males and females by age groups. CT: *Chlamydia trachomatis*

types, tools, and sample types used for the diagnosis of this pathogen.

The gold standard for CT detection is PCR. High levels of sensitivity and specificity are also displayed by in-house PCR.^[4] We used an in-house PCR assay which represents a valuable alternative for the identification of CT in resource-limited settings such as India.

The overall prevalence of CT in females and males was 9.9% and 10.8%, respectively. In a meta-analysis conducted by Smolak *et al.*,^[5] the pooled prevalence of CT in symptomatic women was 12.4% (9.4–15.7) and 17.4% (12.5–22.8) in symptomatic men. Because men and women are distinct populations with different indicators of prevalence, corresponding prevalence data of each need to be analyzed separately to provide information for planning national programs for screening strategies and adequate diagnosis and treatment.

Studies have shown young age to be a significant risk factor for CT infection which was also observed in our study. The correlation between young age and STI might be due to biological and behavioral factors.

In our study, no variation in the prevalence of CT was found over time (2010–2019) as was also observed by Smolak *et al.*^[5] The CT prevalence revealed no upward trend. However, CT prevalence did not show any decline

either during the study period indicating a substantial disease burden in our country.

A unique feature of our study is that it featured only symptomatic heterosexual patients. Including both heterosexual and high-risk populations such as men who have sex with men (MSM) for determining the prevalence of CT may result in an overestimation of infection rates. However, our study has limitations. First, it is a single hospital-based study. Multicenter studies are needed to investigate the prevalence of CT more extensively. Second, being a retrospective study, demographic information could not be obtained to identify risk factors for this pathogen.

To conclude, there is a substantial burden of CT genitourinary infection in our country which is neglected and poorly recognized. Our study provides comprehensive data which can facilitate enhanced CT surveillance and policy implementations aimed at the diagnosis and management of CT infection to maximize patient- and community-level outcomes.

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Conflicts of interest

There are no conflicts of interest.

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