ASYMPTOMATIC CARRIAGE OF CHLAMYDIA TRACHOMATIS ANTIGEN IN INFERTILE AND FERTILE WOMEN

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SUMMARY

Chlamydia trachomatis is a common sexually transmitted pathogen with a clinical spectrum ranging from asymptomatic carriage to acute infection. Estimation of asymptomatic carriage of Chlamydia trachomatis antigen (Ct ag) was done by enzyme immunoassay in 50 infertile and 50 age - matched fertile women. C. trachomatis antigen was detected in 13 (26 percent) infertile and 5(10 percent) fertile women who had no symptoms or signs indicative of chlamydial infection. The carriage of chlamydia trachomatis angigen was significantly higher in women with primary infertility. Women between the age group 15 to 24 years demonstrated a significantly higher positivity for Ct ag in both infertile and fertile women. Routine screening for chlamydia trachomatis antigen in sexually active women is warranted to effectively control this asymptomatic reservoir of chlamydial infection.

INTRODUCTION

Chlamydia trachomatis has emerged as one of the most common sexually transmitted bactrial pathogens worldwide (Taylor-Robinson, 1991). Among women of reproductive age group, it is a major cause of cervicitis, pelvic inflammatory disease and infertility (Cates and Wasserheit 1991). It also causes serious disease in newborn infants exposed during passage through an infected birth canal (Broadbent and O'Leary 1988). Women with symptomatic

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chlamydial infection receive appropriate therapy. However, chlamydial infections in majority of women are asymptomatic and therefore, remain unrecognized (Cates and Wasserheit 1991). Thus, any effective control of chlamydial infectons must aim at reducing this reservoir of infected asymptomatic women, which make up the bulk of prevalent infections and are responsible for its transmission (Jones, 1995), more so, in view of the reported association between chlamydial cervicitis and acquisition of HIV infection (Laga et al, 1993). The present study was undertaken to estimate the prevalence of asymptomatic carriage of Chlamydia trachomatis in infertile and fertile women of reproductive age group to see whether routine testing is warranted.

PATIENTS AND METHODS

Patients

Fifty consecutive women with infertility (Group I) attending the Obstetrics and Gynecology outpatient department of University College of Medical Sciences and Guru Teg Bahadur Hospital, Delhi between May, 1994 to November, 1994, were included in the study. Fifty age matched fertile women attending the outpatients without any symptoms or signs indicative of chlamydia trachomatis infection (Group II) were also included in the study to estimate the prevalence of Ct ag in asymptomatic cases. An informed verbal consent was taken. Any women who had taken intibiotics in the preceeding six weeks was excluded from the study.

Sampling

Endocervical swab samples were collected from both the groups with the swab collection and transport kit (orgenics). Excessive mucus was removed from the ectocervix with an unmarked swab which was later discarded. The marked swab was then rotated inside the cervical canal for 15 to 30 seconds and carried to the laboratory in the transport vial provided with the kit. The samples were tested within one week for detection of C. trachomatis angigen.

Testing for C.trachomatis angigen by enzyme immunoassay

The immunocomb diagnostic kit was used for the direct detection of C.trachomatis angigen in endocervical swabs from women.

After extraction of the test samples and controls (Positive and negatve, supplied with the kit) with extraction buffers, a drop of each filtrate was applied to immunocomb card and dried in an oven at 80°C for 15 minutes. The card was then developed in the reaction plate with seprate compartments for antigen - antibody reaction (A), Conjugate (C) and Chromogen (F) with 30 munute incubation at 37°C and washing between each step. The reaction was stopped by inserting the card in compartment E and rinsed in 95% Ethanol. The presence of a blue grey spot on the tooth of the card denoted a positive result for chlamydia trachomatis angigen. Statistical analysis was done using chi square test.

RESULTS

Chlamydia trachomatis antigen (Ct ag) was detected in 13(26%) patients in group 1 and 5(10%) fertile women (Group II) (Table I) ($P < 0.01$). The antigen detection was the highest in women between the ages of 15 to 24 years in both the groups as compared to women > 25 years of age; 37.03% vs 9.37% ($P < 0.01$) in group I and 16.00% vs 4.00% ($P < 0.05$) in group

TABLE I
PREVALENCE OF CHLAMYDIA TRACHOMATIS ANTIGEN (CT AG) IN INFERTILE AND FERTILE WOMEN

Age groups (Years)	Group I Infertile			Group II Fertile		
	Number Tested	Ct ag Positive	Percentage Prevalence	Number tested	Ct ag Positive	Percentage Prevalence
15 - 24	27	10	37.03**	25	4	16.00***
25 - 34	13	2	15.38	17	1	5.8
> 35	10	1	10.00	8	0	0.00
Total	50	13	26.00*	50	5	10.00

* P < 0.05 as compared to Group II
** P < 0.01 Group I as compared to
*** P < 0.05 Group II women > 25 years

TABLE II
CORRELATION OF CHLAMYDIA TRACHOMATIS ANTIGEN (CT AG) PREVALENCE WITH TYPE OF INFERTILITY AND GRAVIDITY

Chlamydia trachomatis antigen	Infertile women		Fertile women	
	Primary	Secondary	Primigravida	Mulgigravida
Number Tested	32	18	31	19
Number Positive	11	2	4	1
Percentage Prevalence	34.37*	11.11	12.90**	5.26

* P < 0.05 as compared to secondary infertility
** P > 0.05 as compared to multigravida

II (Table I) and this difference was statistically significant. Primary infertility cases demonstrated a significantly ($P < 0.05$) higher positivity for Ct ag (34.37%) as compared to women with secondary infertility (11.11%) (Table II). Among fertile women, prevalence was more in primigravida (12.90%) than in multigravida (5.26%) (Table II) but this difference was not statistically significant ($P > 0.05$).

DISCUSSION

High frequency of asymptomatic genital chlamydial infections in women of reproductive age group necessitates identifying this reservoir of infection responsible for continued transmission (Cates and Wasserheit 1991). Direct detection of chlamydia trachomatis antigen by enzyme immunoassay in clinical samples has been reported to be a simple and relatively rapid technique that has sufficient sensitivity and specificity in the diagnosis of chlamydial infections (Asin et al, 1993). Several studies have demonstrated that untreated and undetected cervical chlamydial infection can ascend through the endometrium to produce silent salpingitis and infertility as its sequelae (Sellors et al 1988). In the present study, infertile women had a significantly higher carriage ofC.trachomatis antigen which indicates a sikent or a persistent infection in them (Beaty et al, 1994). Also, a higher number of women with primary infertility were positive for Ct ag as compared to these with secondary infertility which is an agreement with the published data by Indian Council of Medical Research (ICMR 1992).

The prevalence of C.trachomatis antigen in symptomatic women with lower genital infection in India varies between 20 to 40 percent(Bhujwala et al, 1982, Arora et al, 1992, Lal et al, 1992). However, the extent of asymptomatic carriage of Ct ag is unknown in our region. Among asymptomatic fertile women, 10 percent prevalence in the present study is an agreement with the reported prevalence worldwide of 3-12 percent (Asin et al, 1993, Faro, 1991). Also higher carriage rate of Ct ag was observed in primigravida as compared to multigravida.

Younger women have been reported to be at an increased risk for chlamydia trachomatis infection (Asin et al, 1993, Hillis et al, 1994) as was also corroborated by our study. This high risk could be attributed to the increased exposure of cervical columnar epithelium physiologically, a high risk taking behaviour and inconsistent usage of barrier methods (Hillis et al, 1994).

A Canadian study (Estamy et al, 1989) has shown cost effectivenes of routine testing for C. trachomatis antigen at a prevalence rate of 7.1% or higher by enzyme immunoassay technique. Therefore, with 10% prevalence, screening for chlamydia trachomatis in sexually active women in our region is warranted and indicates a need for more such studies on larger number of patients from different regions of the country. Since effective treatment is available to prevent the

morbidity and occasional mortality due to chlamydial infections, this routine testing, more so, in asymptomatic women is essential.

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REFERENCES

1. *Arora, M., Malhotra, S. and Sharma M: Indian J Med Res: (A) 95; 41; 1992.*
2. *Asin, J.D., Nahorst, R.R., Thijs, C.T., Assendelft, W.J. and Hooi, B.R. : Am J Obstet. Gynec. 169; 375; 1993.*
3. *Beaty, W.L., Morrison, R.P. and Byrna, G.J.: Microbiol Rev : 54; 686; 1994.*
4. *Bhujwala, R.A., Seth, P., Gupta, A and Bhargava N.C. : Indian J Med Res : 75; 485; 1982.*
5. *Broadbent, R. and O'Leary, L. : N Z Med J : 101; 44; 1988.*
6. *Cates, W.Jr. and Wasserheit, J.H. : Am J Obstet. Gynec : 164; 1771; 1991.*
7. *Estamy, A., Todd, M., Varquez, M. and McLaren, R. :Sex. Transm. Dis, : 16;21; 1989.*
8. *Faro. S. : Am J Obstet Gynec : 164; 1767; 1991.*
9. *Hillis, S.D., Nakashima, A., Marchbanks, P.A., Addiss, D.G. and Davis J.P. : Am J Obstet. Gynec. : 170; 801; 1994.*
10. *ICMR Bulletin 22 : Indian Council of Medical Research, Delhi : 1992.*
11. *Laga, M., Manoka, A., Kivuvv. M., AIDS : 7; 95; 1993.*
12. *Lal, H., Rathee, S., Sharma, D and Chowdhary, S. : Indian J Med Res : (A) 95; 77;1992.*
13. *Sellors, J.W., Mahony, J.B., Chernesky, M.A. and Rath, D.J. : Fertile. Steril : 49; 451; 1988.*