

PREVALENCE OF ANTIBODIES TO CHLAMYDIA TRACHOMATIS AMONG INFERTILE COUPLES

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SUMMARY

Prevalence of chlamydia trachomatis (CT) infection was determined in 110 infertile couples using ELISA technique to detect IgG antibodies. The overall prevalence was 3.92%. Infertile women showed higher seropositivity of 5.45% than healthy fertile women, 2.85%.

Among infertiles, 8.3% of women married for 10 years or more, 10% of those with secondary infertility and 14% of tubal factor infertility subgroups were antibody positive and rates of prevalence were higher than in their respective comparable groups. CT antibody detection rate was twice more common in women than in men.

INTRODUCTION

The commonest genital infection in Western world is due to Chlamydia trachomatis (CT). Although the organism causes a broad spectrum of disease in man and infants, it is the female who bears the brunt of consequences of these infections. Moderate to severe tubal infection or damage is caused, despite more benign appearing clinical signs of chlamydial disease (Gjonaess et al, 1982). Serological data from sur-

veys of tubal factor infertility patients suggests that in more than half tubal damage is due to chlamydial disease (Brunham et al, 1985., Sellors et al 1988).

For the diagnosis of chlamydial aetiology detection of antibodies from serum specimens and local secretions by complement fixation and micro-immunofluorescence technique have been developed. These tests though sensitive are complicated. Enzyme linked immunosorbent assay (ELISA) which is equally sensitive and specific has the added advantage of being simple, less time consuming and economic. An objection to the in-

direct determination of antibodies is that without cultural evidence of CT, it cannot be regarded as evidence of current infection.

The study herein reported uncovers the prevalence of CT infection in couples attending for infertility evaluation at Kasturba Medical College Hospital, Manipal, South India.

MATERIAL AND METHODS

Consecutive 110 infertile women with their spouses constituted the study group. A further 35 healthy, fertile women undergoing interval sterilisation were inducted as control group.

For estimation of chlamydial serological status, 5 ml. of venous blood was collected. Serum fractions were refrigerated at +4C if the test is performed within 48 hours or they were frozen at -20C until analysed for chlamydial antibody (CAB).

Serum samples were analysed using CT IgG Enzyme Immuno Assay kit supplied by Lab systems, Finland, which is based on an indirect solid-phase enzyme immunoassay with alkaline phosphatase as the market enzyme.

Incubated and washed 100 ml of 1:100 dilute serum sample was mixed with CT sensitised microstrips (inactivated CT antigen) and washed to remove residual serum sample. 100 ml of alkaline phosphatase conjugated antihuman IgG was then added and reincubated for 60 min. After washing, 100 ml of colourless substrate, p-nitro-phenylphosphate was added and again incubated for 30 min. This results in hydrolysis of the substrate by enzyme to a coloured end product, p-

nitrophenol. The enzyme-substrate reaction is terminated with addition of 100 ml of sodium hydroxide. Readings were taken within 1 hour of terminating the enzyme substrate reaction. Each case was reported as positive, if there was yellow discolouration and as negative, if there was no colour change. The colour intensity is directly related to the concentration of the chlamydia IgG-class antibodies in the patient's serum.

RESULTS

In all, there were 255 blood samples that were subjected to the detection of IgG antibody to CT, which revealed the overall prevalence of 3.92%. The chlamydia antibody detection rate in different groups is shown in Table I.

The mean age of the infertile women was 28.02 SD 13.74 (range 18- 39) years, comparable to 29.57 SD 12.06 (range 24-35) years in the fertile controls.

Among the infertile group, 24 had been pregnant at sometime before and the proportion of seropositivity was higher in this subgroup than those with primary infertility (2/24 versus 4/86). An interesting observation was the higher rate of prevalence in women with marital life of more than 10 years than in women married less than 10 years (1/10 and 3/100, respectively).

There were 14 women with tubal factor infertility and 32 with other female factors as the cause for infertility. Fourteen percent (2/14) of women with tubal factor infertility showed chlamydial antibodies to none in women with other female factors.

TABLE I

PREVALENCE OF CHLAMYDIA TRACHOMATIS ANTIBODY (CAB)

	Samples (No.)	CAB Positive (No.)	Prevalence of sero-positivity %
Samples studied	255	10	3.92
Infertile couples	220	9	4.09
Infertile women	110	6	5.45 } Not
Healthy fertile women	35	1	2.85 } significant

A higher prevalence of 5.45% (6/110) was seen in females when compared to 2.75% (3/110) in males. Out of 110 infertile couples in the study, 2 couples were sero positive for chlamydia trachomatis antibody. In 3 cases, only the female partner was found to be seropositive, whereas, in one case the male partner alone was seropositive.

DISCUSSION

The results of present communication reveal that the CT infection is prevalent, as evidenced by detection of IgG antibodies in all the groups studied and that the rate of seropositivity is higher in infertile subgroups. Kane et al (1984) and Quinn et al (1987) have also made similar observations.

Being a sexually transmitted disease, the findings of higher percentage of seropositivity in women with secondary infertility and in those women married for 10 years or more is self explanatory.

Women with tubal factor infertility had higher rate of prevalence for CT antibodies than in women without tubal contributory factor. Other studies have also noted higher

prevalence in tubal factor infertility subgroups: ranging from 35-91 percent. (Paavonen and Wolner-Henssen, 1989). This wide variation among women with tubal factor may be related to the sexual habits including promiscuity, in the communities studied.

The higher prevalence of CT infection in infertile women than in men has received lesser attention in the literature reviewed. It was twice higher in women than men, in the present study.

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