

ASSOCIATION OF CHALAMYDIA TRACHOMITIS INFECTION IN PATIENTS WITH TUBAL FACTOR INFERTILITY

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Abstract

This prospective study on detection of antibody (IgG) to chlamydia trachomatis in infertility was carried out on 60 cases at the infertility unit of Department of Obstetrics and Gynaecology, Bangabandhu Sheikh Mujib Medical University, Dhaka (BSMMU) during July 2005 to June 2006.

In this study, IgG antibody to Chlamydia trachomatis in serum was positive in 56.7 percent case and mean \pm (SD) was 1.33 ± 0.91 . Mean age of the cases was 36.30 ± 4.92 years. Duration of marriage 7.68 ± 3.49 years. Duration of infertility 6.13 ± 3.02 years, duration of use contraceptive was 15.80 ± 12.45 months. Out of 30 cases, 53.3 percent had primary infertility and 46.7 percent secondary infertility. Menstrual cycle was regular in 73.3 percent and irregular in 26.7 percent cases. Dysmenorrhea was present in 43.3 percent cases. Most common tubal pathology was adhesion in 11 (36.7%) other common diagnosis were beaded and tortuous tube in 8 (26.7%) and hydrosalpinx in 6 (20%) cases. Tube was dilated in 2 (6.7%) cases.

Bilateral tubal block was present in 17 (56.7%) and unilateral block in 13 (43.3%) cases.

In control group antibody to chlamydia trachomatis in sera was positive in 2 (6.7%) and negative 28 (93.3%) and in cases group sera positive 17 (56.7%) and 13 (43.3%) negative respectively.

The difference was statistically ($P < 0.001$) significant.

Key words: chlamydia trachomatis; infertility; tubal factor

Introduction

Chlamydia trachomatis is one of the species within

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the genus chlamydia and virtually all chlamydia infections are sexually transmitted. Many serotypes have been identified based on an immunofluorescent antibody types system of which DEFGHU and K have been associated with a non gonococcal urethritis, cervicitis, salpingitis, proctitis, including conjunctivitis and pneumonia of the newborn. Chlamydia infection are more insidious in onset. Infection with this agent can be symptomatic in up to 80% women which make diagnosis difficult.¹

Many patients present with mucopurulent discharge from the endocervical canal and hypertrophic ectopy of the cervix, which bleeds on touch. Menorrhoea and metrorrhoea are often seen in association with salpingitis. When left undetected and untreated chlamydia can ascend through upper genital tract, causing inflammation and scarring in both the female and male genital tract.

Many women are unaware that they have a pelvic infection serious enough to damage the tube and only discover the damage when they attempt pregnancy and fail to conceive. Gonorrhoea was once the most common sexual transmitted disease (STD) but now chlamydia is primarily responsible for pelvic infection.

It is the major causative agent in the development of Pelvic inflammatory disease (PID) in woman.

Chlamydial infection is also responsible for 40% ectopic pregnancy, while 60% women with tubal factor infertility have serological evidence of post infection with chlamydia². Thus it is important to detect and treat lower genital tract infection to reduce the incidence of PID and screening from chlamydia which have received much attention recently^{3,4}. Although laparoscopy is the 'gold standard' for the diagnosis of PID, but it is expensive and carries a significant risk³. In contrast to laparoscopy of hysterosalpingography, detecting evidence of past chlamydial infection using serology is noninvasive, simple and quick to perform⁴.

In India, during investigation on infertility, tubal pathology was found to be 40 percent⁵.

The commonest causes of infertility in the females are tubal and ovulatory factors⁶.

Materials and methods

In this prospective study 60 women have recruited from infertility unit of BSMMU, Dhaka.

Sampling was done in selected groups of infertile women who under went laparoscopic examination. 30 were infertile women with normal fallopian tubes and 30 were infertile women with tubal pathology.

The assessment was based on a careful analysis of the history and clinical examination of the women, both primary and secondary sub fertile women within 18-40 years of age and irrespective of socioeconomic status were included in this study. Age of women above 40 years and women whose husbands had semen abnormalities were excluded in this study.

Ultrasonography, and other investigations like CBC, X-ray chest, laparoscopy performed in all cases. Then endometrial biopsy for hystopathology and AFB staining to exclude the other cause of tubal block. Test were carried out in the laboratory. Sample of 2 ml of venous blood by antecubital venipuncture was collected from each women using a sterile disposable plastic syringe under full aseptic precaution into a eppendorf tube. Blood was preserved at -2°C to -4°C. Tests were carried out in the laboratory of BIRDEM hospital.

IgG antibodies to chlamydia trachomatis level in the serum of all the samples were tested using elsa method. All the necessary information and clinical data were systematically recorded by interviewing the patients on a predesigned questionnaire. Collected data were compiled and computerized for statistical analysis.

P value <0.05 was taken as minimal level of significance.

Results

The average age of two study group mean ± SD age in control and case groups were 26.30 ± 4, and 26.60 ± 3.48 respectively.

The mean age showed statistically no significant difference between two groups (P>0.50).

Type of infertility (primary and secondary among control and case groups. In control group 21 (70%) women had primary sub fertility and 9 (30%) secondary sub fertility.

In case group 16 (53.3%) had primary sub fertility and 14 (47%) secondary sub fertility. The distribution did not show statistically any

significance difference. Out of 30 cases 53.3 percent had primary sub fertility and 46(7%) secondary sub fertility.

Most common tubal pathology was adhesion in 11 (36.7%) other common diagnosis were beaded tortuous tube in 8 (26.7%) and hydrosalpinx in 6 (20% cases).

Tube was dilated in 2 (6.7%) cases and normal in 2 (6.7%) cases.

Bilateral tubal block was present in 17 (56%) and unilateral in 13 (43.3%).

Pouch of doglus was normal in 16 (53.3%) cases. Endometriosis in 6 (20%) obliterated in 5 (16.7%) and adhesion in 3 (10%) cases were observed.

In controll group antibody to chlamydia trachomitis in sera was positive in 2 (6.7%) and negative 28 (93.3%). In cases group sera positive 17 (56.7%) and 13 (43.3%) negative respectively.

The difference was statistically (P<0.001) significant.

Table 1 : Laparoscopic findings of fallopian tubes of infertile women with tubal pathology (n = 30)

Findings	Right No. (%)	Left No. (%)
Adhesion	9 (30.0)	11 (36.7)
Elongated	1 (3.3)	1 (3.3)
Tortuous, beaded, fimbrial cyst	8 (26.7)	8 (26.7)
Hydrosalpinx	6 (20.0)	6 (20.0)
Dilated / congested	2 (6.7)	2 (6.7)
Normal	4 (13.3)	2 (6.7)

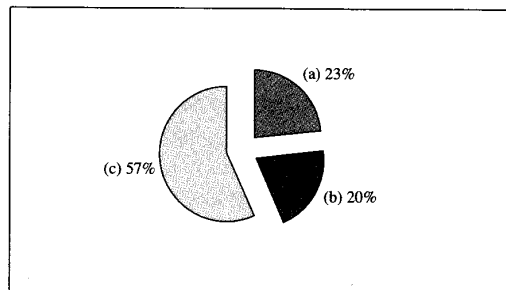


Fig 1 : Pie diagram showing Frequencies of tubal patency test results (n=30)

- (a) Only right side negative
- (b) Only left side negative
- (c) Both right and left side negative

Table 2 : Findings of antibody to chlamydia trachomatis in serum

Findings	Control (n = 30) No = %	Case (n = 30) N = 30	P Value
Positive	2 (6.7%)	17 (56.7%)	<0.001)
Negative	28 (93.3%)	13 (43.3%)	

Discussion

Infertility is a fairly common problem in our country and has got more social and clinical significance in a basically middle class society like Bangladesh.

The hospital admission rate of infertility cases at BSMMU, Dhaka, was 26.5% of all gynecological admission.

However hospital or clinic based data does not represent the true prevalence of the problem of infertility in the whole country.

One of the major causes of infertility is tubal factor (Das 1996)⁷ found tubal block in 35% cases in her study at BSMMU.

The most common cause of tubal factor infertility is occlusion of the fallopian tubes to an infection by a sexually transmitted agent by chlamydial trachomatis.

Many causes of chlamydial salpingitis have a more or less sub-clinical course.

Ullah et al (1998)⁸ showed that chlamydial antibody positive in 70.97 percent cases in blocked fallopian tube and 6.67 percent cases in normal patent fallopian tubes.

Kodaman (2004)⁹ reported that antibody (IgG) titer in women with tubal damage were significantly higher than women without tubal damage and past infection with chlamydia trachomatis was associated with a significantly increased risk of women suffering from tubal infertility.

In our study bilateral tubal occlusion was present in 56.7 percent and unilateral tubal occlusion was present in 43.3 percent infertile women with chlamydial antibody positive cases.

This result was higher than the study reported by Ullah et al (1998) who found 37.5% percent and 10.94% percent cases by lateral and unilateral tubal occlusion respectively.

Comparison between case and control group regarding age, socioeconomic status, menstrual history, obstetrical history and contraceptive history showed that there was no significant difference

between the two groups.

Chlamydial antibody (IgG) study showed a highly significant difference between the case and control, which was positive in 56.7 and 6.7 percent respectively.

This is a significantly higher percentage of chlamydial antibodies (IgG) positive in infertile women with tubal blockage compared with those of patent tube.

Chlamydial infection in women is the major cause of infertility by tubal block.

Conclusion

Tubal damage is a common cause of infertility and laparoscopy or hysterosalpingography are accepted methods for diagnosing this condition. They are however, both costly and invasive and therefore, unsuitable for screening on a large scale. Infection with chlamydia trachomatis results in the formation of antibodies detectable in serum. As such, chlamydia serology may be used as a screening test for tubal damage in infertile women.

Recommendations

This study does not reflect the overall situation of Bangladesh as sample size was very small. Therefore, chlamydia serology may be used as a screening test for tubal damage in infertile women. Further large scale study is needed for infertility treatment. Chlamydial antibody (IgG) detection should be available in our country at that level that all infertile couples can benefit from it.

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