CORRELATION BETWEEN SERUM ANTICHLAMYDIAL ANTIBODIES AND TUBAL FACTOR AS A CAUSE OF INFERTILITY AS ASSESSED BY LAPAROSCOPY

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SUMMARY

Forty infertile and 20 fertile patients were taken as a study and control group respectively in the present study which was conducted in the year 1993 in L.N.J.P.N Hospital, New Delhi. Initial evaluation included complete history, physical examination and complete workup of infertility. Antichlamydia antibodies were detected by immuno peroxidase assay. The maximum number of cases under study were found to be in the age group of 26-31 years. 65% of infertile patients as compared to only 35% of fertile patients had serum antichlamydial antibodies, suggesting subclinical or past chlamydial infection. A statistically significant correlation was found between infertility and seropositivity for antichlamydial antibodies (X^2 = 4.84, P<0.05). Also, 80% of infertile patients with tubal factor as a cause of infertility as assessed by laparoscopy were seropositive for antichlamydial antibodies as compared to 50% of those without tubal factor for infertility. A statistically significant positive correlation (X^2 = 3.9, P< 0.05) was found between serum antichlamydial antibodies and tubal factor as a cause of infertility as assessed by laparoscopy. Thus relatively asymptomatic chlamydial infection can cause clinically benign disease which can progress and lead to tubal damage and subsequent infertility.

INTRODUCTION

The challenges in reproductive medicine today require improvements in the investigation and management of infertile

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Accepted for Publication 20.10.95

patients. The tubal and peritoneal pathology has been seen to be one of the foremost cause of infertility in the developing countries. The incidence of tubal infertility varies and depends largely on the prevalence of pelvic inflammatory disease (PID) in a given geographic area. PID occurs most often due to ascending infection from the lower genital tract, commonly the sexually transmitted diseases (STDs). The so called sexual revolution has lead to a worldwide increase in the incidence of STDs and of the various organisms known to cause STD, Chlamydial Trachomatis has emerged as one of the important causative agent.

Studies conducted in the developed countries have documented chlamydial infection to be associated with tubal infertility. However, the data on the importance of these infections in the developing countries is scarce although the complications and sequelae of STDs contribute a major medical problem in these countries. The present study intends to study the role of chlamydial infection as demonstrated by presence of serum antichlamydial antibodies in tubal infertility as assessed by laparoscopy.

MATERIAL AND METHOD

This study was conducted in the department of Obstetrics and Gynaecology of L.N.J.P.N. hospital, New Delhi in the year 1992. Fourty patients of infertility, which included cases of both primary and secondary infertility who have had a complete infertility workup, from infertility clinic, including laparoscopy were taken as cases. Twenty fertile patients who attended the family planning clinic for laparosterlization and had normal study reported on laparoscopy were selected randomly as a control group. A detailed history was obtained from each patient. The cases were divided into 2 groups based on their laparosc opic findings in which presence or absence of following signs were noted specifically : tubal patency, phimosed fimbriae, peritubal adhesions, cornual blockage, unilateral or bilateral hydrosalpinx and other pelvic finfings such as endometriosis, ovarian cysts etc. The two groups were those with tubal factor as a cause of infertility (20 patients) and those without tubal factor (20 patients).

Three c.c of blood sample was taken from each patient (cases and controls) and centrifuged at 1500 rpm for 10 minutes. The serum was separated and stored at - 20^{o} C for detection of IgA & Ig G antichlamydal antibodies by indirect immuno peroxidase assay (IPA zyme chalmydia, Savyon diagnostics Ltd)

RESULTS

The maximum number of patients under study were found to be between 23 and 30 years of age as shown in Table I. The mean age calculated for the cases was 27.15 years and for the controls 27.25 years. 53.33% of patients with primary infertility presented with duration of marriage 3-6 years. 20% patients with secondary infertility reported with duration of marriage of 3-6 years & 50% with 7-10 years. It was thus seen that majority

TABLE I
DISTRIBUTION OF CASES AND CONTROLS ACCORDING TO AGE.

Age (Years)	Cases (infertile patients)		Controls (fertile patients)	
	No.	%	No	%
20-22	6	15%	-	-
23-25	10	25%	8	40%
26-28	7	17.5%	4	20%
29-31	10	25%	6	30%
32-34	6	15%	2	10%
35-37	1	2.5%	-	-
	40	100	20	100

TABLE II
SEROPOSITIVITY FOR SERUM ANTICHLAMYDIAL ANTIBODIES IN CASES AND CONTROLS.

Group of patients	No. of patients	No (%) patients with antichlamydial antibodies of class	
		IgG (1 : 64)	IGA (1 :64)
1. Cases (infertile patients)	40	26(65%)	12(30%)
2. Controls (Fertile patients)	20	7(35%)	5(25%)
	60	33(55%)	17(28.33%)

of couples (45%) got themselves investigated when conception failed to occur within 3-6 years of marriage and cohabitation with normal sexual activity. Of the

60 patients under study Ig G antichlamydial antibodies were present in 33 patients (55%) and Ig A in 17 patients (28.33%) as shown in Table II. Antichlamydial antibodies were detected in the serum of 26 (65%) infertile women and in 7(35%) fertile patients. This difference was statistically significant (X2 4.84:P<0.05) thus indicating an association between infertility and serum antichlamydial antibodies.

Active chlamydial infection as demonstrataed by presence of Ig G and Ig A antichlamydial antibodies in the serum was observed in 12(30%) infertile and 5(25%) fertile patients. However, the serological evidence of past infection in the form of presence of Ig G antibodies was found in 14(30%) infertile and 2(10%) fertile patients. The association between serological evidence of past infection and infertility as calculated by X^2 test was found to be statistically significant ($X^2 = 4.26$:

TABLE III
CORRELATION OF SERUM ANTICHLAMYDIAL ANTIBODIES AND LAPAROSCOPIC FINDINGS.

Laparoscopy finding	No. of patients	No. (%) patients positive for antibodies of class Ig G	Ig A
Peritubular adhesions	14	11 (78.57%)	6 (42.85%)
Unilateral or Bilateral Hydrosalpinges	11	10 (90.9%)	5(45.45%)
Old inflammatory changes	4	4 (100%)	2 (50%)
Tubal Block	11	10 (90.91%)	4 (36.36%)
Tube absent	2	2 (100%)	2 (100%)

TABLE IV
CORRELATION OF SERUM ANTICHLAMYDIAL ANTIBODIES WITH TUBAL FACTOR AS A CAUSE OF INFERTILITY.

Tubal Factor	No of Patients	No (%) of patients positive for serum antichlamydial anti bodies of class. IgG	IgA
Present	20	16 (80%)	8 (40%)
Absent	20	10 (50%)	4 (20%)

P<0.05) however no such association could be demonstrated for active infection with chlamydia Trachomatis.

No significant association was found between history suggestive of PID and presence of serum antichlamydia antibodies in either cases or controls. Also, no correlation was found between type of infertility and seropositivity for antichlamydial antibodies.

A large proportion of cases with Laparoscopic findings as mentioned in Table III were detected to be seropositive for antichlamydial antibodies. Significant statistical association could be demonstrated between seropositivity for antichlamydial antibodies and findings of hydrosalpinges and tybal block on laparoscopy.

Sixteen patients (80%) with tubal factor as a cause of infertility as assessed by laparoscopy were detected to be seropositive for antichlamydial antibodies as compared to 10 patients (50%) with no evidence of tubal factor. On statistical calculations by X2 test, significant association was found between seropositivity for antichlamydial antibodies and tubal factor as a cause of infertility (X2, 3.9: P<0.05).

DISCUSSIONS

The results of this study indicate an association between chlamydial infection as shown by presence of antichlamydial antibodies in the serum and infertility. The proportion of patients seropositive for antichlamydial antibodies was almost twice as high in the infertile group as in the control group.

Also the results of this study confirm those of Punonen et al (1979) who demonstrated a strong correlation between antichlamydial antibodies and tubal factor in infertility. 80% of the infertile patients with tubal factor as the cause of infertility in the present study were seropositive for antichlamydial antibodies as compared to only 50% of those without tubal factor. A number of previous studies by Moore et al (1982) has also suggested an association between chlamydial infections and tubal infertility.

In the present study, no significant correlation was found between history suggestive of PID and seropositivity for antichlamydial antibodies. This is similar to the findings by Jones and Ardery (1982) Westrom (1980) has reported that patients with chlamydial salpingitis tend to have milder symptoms for a longer period of time and that paradoxically these patients have poorer fertility prospects as compared to infections with other organisms. This suggets that chlamydial pelvic infections may be so mild that they escape attention and medical treatment and that in such cases there is ahigh risk of continuing tubal disease with tubal obstruction leading to infertility.

These findings suggest that gynaecologists should be aware of the importances of chlamydia trachomatis in mild pelvic inflammatory disease. Prompt diagnosis and treatment is needed to prevent the long term sequelae as described above.

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