

THE RATE OF CHLAMYDIA TRACHOMATIS, MYCOPLASMA HOMINIS AND UREAPLASMA UREALY- TICUM IN FEMALES WITH HABITUAL ABORTION AND ITS COMPARISON WITH CONTROL GROUP

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Abstract: Females abortion is one of the most important sequela of genital infection with *Chlamydia trachomatis*, *Mycoplasma hominis* and *Ureaplasma urealyticum*.

In this study frequency of *Chlamydia trachomatis*, *Mycoplasma hominis* and *Ureaplasma urealyticum* was studied in 125 females with habitual abortion by direct and indirect immunofluorescence tests and culture method and compared with 250 normal population. The results obtained were as follow:

Mycoplasma hominis was isolated from 18 (14.4%) females with habitual abortion and 18 (7.2%) normal population ($P=0.0139$). *Ureaplasma urealyticum* was isolated from 39 (31.2%) females with habitual abortion and 48 (19.2%) normal population ($P=0.0045$). *Chlamydia trachomatis* was detected by direct immunofluorescence test in 9 (7.2%) of cases and 2 (0.8%) of control groups ($P=0.0002$). The antibody titer against D-K serotypes of *Chlamydia trachomatis* was also measured. The valuable titer of antibody ($>1/16$) was detected in 15 (12%) of cases and 8 (3.2%) of control groups ($P=0.0004$).

The results show that *Chlamydia trachomatis* and *Ureaplasma urealyticum* may be responsible for some cases of abortion.

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Key Words: *Chlamydia trachomatis*, *mycoplasma hominis*, *ureaplasma urealyticum*, females, habitual abortion

INTRODUCTION

Females genital tract is a suitable place for growth of many micro-organisms. Some of these micro-organisms such as *Chlamydia trachomatis*, *Mycoplasma hominis*, *Ureaplasma urealyticum*, *Gardnerella vaginalis*, *Listeria monocytogenes* and

Neisseria gonorrhoeae upon localization and colonization at the appropriate anatomical site may cause various pathological disorders like cervicitis, vaginitis, urethritis, endometritis, salpingitis, bartholinitis. The pathological disorders may lead to pelvisitis, ectopic pregnancy, abortion and infertility and cervical dysplasia. It was reported that some of these microorganisms produced noraminidase like substance which showed to induce certain disorders in blastocyst of murine model and might cause a similar pathological disorders in human (1-4).

The purpose of this study was to investigate the rate of *Chlamydia trachomatis*, *Mycoplasma hominis* and *Ureaplasma urealyticum* in females with habitual abortion and their comparison with the control group.

MATERIALS AND METHODS

In this study, 125 samples from females with habitual abortion referred to Imam Khomeini and Mirza Koochak Khan hospitals of Tehran and 250 samples from healthy volunteers (control group) were collected during 1996-1998.

By using speculum, 4 sterile cotton swabs were used to collect specimens. One of the swabs was transferred to pplo broth medium, the two other were used for gram stain and direct fluorescence test (DIF), the forth swab was kept at -70°C for further validation. Then the samples were transported to laboratory for further tests. Five ml of blood sample was collected from each case for titration of antichlamydial antibodies. The media containing suspected *Mycoplasma* and *Ureaplasma* were passed through membrane filter of 0.22 milipore by pressure, then inoculated in to urea and arginine containing media and incubated at 37°C under 5% CO_2 . When the medium color changed, the sample was transferred to pplo agar medium for further confirmation (5-8). Serum samples were checked within 3 different following pooled *Chlamydia* antigens:

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- 1- A, B, B₁, C,
- 2- D, E, F, G, H, I, J, K,
- 3- L₁, L₂, L₃

A serial dilution of each serum sample was prepared and added to different acetone fixed antigens. After 30 minutes incubation in 37°C in moist condition, slides were washed with PBS, for 10 minutes and then dried at room temperature. Then the labeled anti-human fluorescein isothiocyanate conjugate (FITC) was added to each slide and incubated at 37°C in moist condition for 30 minutes. The slides were washed with PBS and PBS containing Evans blue, and a drop of buffered glycerol solution was added to each of them. Then they were observed under fluorescence microscope (9-12).

RESULTS

In this study, 125 samples from females with habitual abortion and 250 samples from control group (Healthy volunteers) were collected. The samples were processed by culture and serological tests. The results are as follows:

Table 1 shows frequency distribution of females on the basis of age, signs of disease and level of education in case and control groups. In regard of the profession of the subjects under investigation, out of 125 cases, 97 (77.6%) were housewives and 28 (22.4%) were employees. Also in control group, 155 (62%) were housewives and 95 (38%) were employees. Detective rate of Chlamydia trachomatis, Mycoplasma hominis and Ureaplasma urealyticum in

the case group were 7.2%, 14.4% and 31.2% , respectively . These rates in control group were 0.8%, 8.7% and 19.2% respectively (Table 2). The obtained results of antibody titration against D-K serotypes of Chlamydia trachomatis in case (12%) and control groups (3.2%) are shown in Table 3 (P=0.0004).

Z statistical analysis test with 99% confidence, showed that the rates of Chlamydia trachomatis and Ureaplasma urealyticum in case and control groups had significant differences.

DISCUSSION

This study was undertaken to investigate the rate of Mycoplasma hominis, Ureaplasma urealyticum and Chlamydia trachomatis in involved females with habitual abortion. The obtained results of this study are shown in Tables 2-3 and indicated as follows:

Mycoplasma hominis was isolated from 14.4% of case and 8.7% of control groups (P=0.0139). The rate of this bacterium was reported in 14-15% case and 9-10% in control groups by Maitrayee RM, et al (1994). These results are nearly the same as our findings (13).

Isolation rate of Ureaplasma urealyticum in case and control groups was 31.2% and 19.2%, respectively (P = 0.0045). The rate of this Microorganism in females with abortion and control group was reported 24-54% and 15-20%, respectively by Nancy EL, et al (1994), Maitrayee RM, et al (1994) and Berg TG, et al (1999) (13-15).

Table 1. Frequency distribution of under study females on the basis of age, signs of disease and level of education

Age (in year)	Case group n = 125 No %	Control group n = 250 N %
<20	3 (2.4)	13 (5.2)
21-24	37 (29.6)	61 (24.4)
25-29	37 (29.6)	70 (28)
30-34	20 (16)	59 (23.6)
35-39	24 (19.2)	37 (14.7)
>40	4 (3.2)	10 (4)
Signs of disease:		
Discharge	15 (12)	—
Spotting	54 (43.2)	—
Itching and burning	36 (28)	—
Urine frequency	24 (19.2)	—
Pain beneath abdomen	26 (36.3)	—
Painful intercourse	46 (36.8)	—
Painful menstrual cycle	46 (36.8)	—
Spotting after sexual	11 (8.8)	—
STD of sex partner	2 (6)	—
Self STD	5 (16)	—
Level of education:		
Illiterate	9 (7.2)	17 (6.8)
Primary education	27 (21.6)	43 (17.2)
High school education	59 (47.2)	107 (42.8)
Higher education	30 (24)	83 (33.2)

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