Significance of Anaerobes and Chlamydia Trachomatis in Pregnant Women with Bad Obstetrics History

Sandhya Agarwal, B.M. Agarwal, Ghizala Rizvi , Khalid H. Ansari
Department of Obstetrics & Gynaecology and Department of Microbiology S.N. Medical College, Agra

Summary: The association of Chlamydia trachomatis (CT) and secondary organisms especially anaerobes in BOH cases is unexplored. The CT antibody titre and non H_2O_2 producing lactobacilli were significantly raised in BOH cases 87.7% and 74.5% respectively, than cases without BOH and control group and it was statistically significant ($p<0.01$). Bacteroides sps were predominant in 51.1% cases in BOH. Co-existence of Anaerobic Lactobacilli, Bacteroides sps with raised CT antibody titre was seen in 46.7% in BOH cases as compared to 8.3% in the cases without BOH. Appropriate use of antibiotics improves the outcome. The possible etiopathogenesis has been discussed.

Introduction

Late 9th decade had witnessed a rising trend of isolation rate of Chlamydia trachomatis in various female reproductive tract infections as well as in infertility and recurrent spontaneous abortion (Agrawal & Agrawal et al 1996a; 1996b; Rao et al., 1994; Wilkin and Ledger, 1992). However, the association of Chlamydia trachomatis with secondary organisms in particular with anaerobic Lactobacilli have not been explored and scanty literature is available (Hillier et al., 1992; Hillier et al., 1993). From Northern part of India, no such report is available. Therefore, the present study was aimed to explore the incidence of CT IgG antibody in such cases and also to correlate the association of anaerobic lactobacilli along with Bacteroides sps in pregnant women with or without BOH.

Material and Method

150 cases of pregnant women with or without BOH were selected from indoor and outdoor department of Obstetrics of Gynaecology, S.N. Medical College and Hospital, Agra, for the study group and sub-divided into Group A_1 comprised of 90 cases (with BOH) and Group A_2 comprised of 60 case (without BOH) and matched with 100 cases of normal non-pregnant women of same age group (control group-Group B). The age group ranged between 15-30 years in both study and control group with mean age of 22.5 years. The study was conducted between the period January 1994 to December 1997.

The Sera was processed for CT IgG antibody using solid phase enzyme immunoassay (ImmunoComb technique, Organics Limited, New Delhi) based on solid phase enzyme immunoassay. The intensity of colour was an indication for antibody titre and the dilution was recorded with the scale provided.

Two high vaginal swabs were obtained. One was inoculated on blood agar, Mac Conky agar while the other one on Lacto-bacilli Agar, Bacteroides Bile Esculin Agar, for isolation of anerobic organism including anaerobic Lactobacilli. Final identification and typing was done according to criteria laid down by Finegold. (1982).

All the specimens were processed in the Department of Microbiology, S.N. Medical College and Hospital, Agra.

'Z' test for proportions was applied for evaluating the statistical significance between (i) H_2O_2 producing and non H_2O_2 producing Lactobacilli and (ii) for the association of non H_2O_2 producing Lactobacilli, Bacteroides sps and CT antibody titre in study and control group.

Results

The age-wise distribution of the cases in study and control group revealed that the maximum number of cases were between the age group of 21-25 years. There were

46 cases (51.11%) and 31 cases (51.7%) in subgroup A_1 and A_2 while in control group it was again maximum 44 cases (44%) which reveal almost equal distribution.

Table I: It is evident that significant CT antibody titre (1:16 or more) was observed in 87.7% cases in Group A_1 and 21.6% cases in Group A_2 and 3% in control group.

Table II: The distribution of anaerobic organisms and CT antibody titre in study and control group has been depicted in table II. Non H_2O_2 producing Lactobacilli were seen in 83 cases (71.3%) in study group as against 12 cases (12.0%) in control group. Further analysis revealed that 56 cases (62.2%) in Group A_1 6 cases (10.0%) Group A_2 shared with elevated CT antibody titre as against control group 3 cases (3%) only. Bacteroides sps were recorded in 46 cases (51.1%) in Group A_1 and 18 cases (30.0%) in group A_2 and 14 cases (14%) in control group. The correlative study of CT antibody titre Lactobacilli sps and Bacteroides sps revealed that 42 cases (46.7%) shared raised CT antibody titre, anaerobic Lactobacilli and Bacteroides sps in women with BOH while in women

Table I

Distribution of CT IgG Antibody Titre in Study and Control Group

CT IgG Antibody Titre	Study Group (n=150)				Control Group(B) (n=100)	
	With BOH(A_1)		Without BOH (A_2)			
	No.	%	No.	%	No.	%
Negative	-	-	-	-	46	46.0
1/4	3	3.3	8	13.3	30	30.0
1/8	8	8.6	7	11.6	21	21.0
1/16	10	11.0	9	15.0	3	3.0
1/32	23	25.0	8	13.3	-	-
1/64	14	15.5	12	20.0	-	-
1/128	17	18.6	16	26.6	-	-
1/256	15	16.6	-	-	-	-

Table II

CT IgG Antibodies Titre, Lactobacilli sps and Bacteroides sps in Study and Control Group

Group	CT IgG Antibody Titre		Lactobacilli			Bacteroides sps	
	<1:16	>1:16	non H_2O_2	H_2O_2	None	Present	Absent
Study Group With BOH (A_1)	11 (12.2)	79 (87.7)	67 (74.5) (11+56)	12 (13.3) (9+3)	11 (12.2)	46 (51.1) (42+4+0)	44 (48.9) 2
Without BOH (A_2)	47 (78.3)	13 (21.6)	16 (26.6) (10+6)	40 (66.6) (0+40)	4 (6.7)	18 (30.0) (5+13)	42 (70.0)
Control Group (B) n=100	97 (97)	3 (3)	12 (12.0) (9+3)	70 (70.0) (0+70)	18 (18.0)	14 (14.0) (3+8+3)	86 (86.0)

without BOH it was in 5 cases (8.3%) as against control group having only 3 (3.0%) cases.

On the other hand, aerobic Lactobacilli, revealed absence of Bacteroides sps in 9 cases (10%) in Group A_1 and 40 cases (66.6%) in Group A_2, while in all the 70 cases (70%) in control group respectively.

Finally aerobic Lactobacilli sps, Bacteroides sps and the CT antibody titre were raised in only 3 cases (3.3%) out of 12 cases of Group A_1 while none of 40 cases in group A_2 and 70 cases in group B revealed the association.

Discussion

The current decade have felt the presence of C. trachomatis infection particularly in women suffering with chronic PID, chronic cervicitis, salpingitis, faulty plantation of decidual tissue leading to ectopic pregnancy, premature birth/still birth and even infertility (Trecharne et al., 1979, Martin et al., 1982; Gogate et al., 1994).

In normal population the CT IgG antibody titre (1:16 or more) ranged from 1% to 7% (Agrawal et al., 1996; Gogate et al., 1994; Shayegani et al., 1987) in non pregnant women while our study detected it in 3% cases.

The CT IgG antibody titre was markedly raised in pregnant women with or without BOH, (87.7%) and (21.6%) as compared to reported by other studies (33.1%) and (27.0%) (Martin et al., 1982; Chacko and Lovchick., 1984).

The comparative evaluation reveals H_2O_2 producing Lactobacilli along with Bacteroides sps and raised CT antibody titre was seen in 3.3% in Group A_1 and nil in Group A_2 and Group B respectively.

Similarly Non H_2O_2 producing Lactobacilli and Bacteroides sps along with raised CT antibody titre was seen in 46% in A_1, 8.3% in A_2 and 3% in control group. The association between the study and control group was statistically significant ($z = 9.56$, $p < 0.01$).

Statistically significant difference was observed between Non H_2O_2 producing Lactobacilli and H_2O_2 producing Lactobacilli in study and control group ($z = 11.81$, $p<0.01$). This may be because of Anaerobic environment produced by Non H_2O_2 producing lactobacilli which helps in colonization of Bacteroides sps. The reduced oxygen tension will also effect the vitality of the tissue further favouring the growth of Chlamydia. This is also supported by Hillier et al. (1992), Hillier et al., (1993) and Eschenbach et al (1989).

Therefore, it is emphasized that pregnant women with or without BOH should be evaluated, not only for anaerobes and Non H_2O_2 Lactobacilli but also for C. trachomatis and proper care should be taken for their eradication.

Acknowledgements

The authors are grateful to the Trustees of Lady Tata Memorial Trust, Bombay for providing financial assistance to carry out the study.

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