

## CHAPTER V

### DISCUSSIONS.

#### Prevalence of Infection

C. trachomatis was recovered from the endocervix of 15%(21/140) of the pregnant women tested. Other investigators reported the prevalence of chlamydial infection in pregnant women to be from 2% to 18% (7-12). It does not appear to differ appreciably from those studied by others.

In our study, there was no statistically significant difference between the frequencies of isolation of chlamydia with endocervical cultures performed in the first and third trimester. Heggie et al also found frequencies of chlamydial isolation in the third trimester were higher than in the first trimester; however, the difference was not statistically significant (12). They suggested that the high frequencies of this infection in pregnant women might result from activation of a latent chlamydial infection of the genital tract by pregnancy.

#### Serology

Serum IgG titer of  $\geq 1 : 32$  in men and  $\geq 1 : 64$  in women or the presence of antichlamydial IgM are considered suggesting active chlamydial infection (21). 20/126 (15.9%) of present study had antichlamydial IgG antibody of genital serotype (titer of  $\geq 1 : 64$ ). In this study 20/126 (15.9%) of women were isolation positive (Table 11).

Treharne et al showed that the geometric mean titer (GMT) of antibody in 117 women with cervical isolation positive results was 1:66 (20). In this study, GMT of 1 : 57 were demonstrated in 18 with cervical isolation positive results. Thus, an antichlamydial IgG titer of

1:64 or greater are considered a more realistic criterion of serological positivity. In addition, the correlation of antichlamydial IgG titer of 1:64 or greater with chlamydial isolation positive results showed that the antichlamydial IgG titer of  $\geq 1:64$  were significant ( $p > 0.05, \chi^2$  test).

Of 126 women presenting for routine antenatal examinations, antibodies to genital serotype of *C. trachomatis* (titer 1:16) were found in the sera of 30/126 (23.8%) whereas 18 (14.3%) of women had antichlamydial IgG to genital serotypes (D to K), 5 (4.0%) to genital and LGV serotypes (D to K and  $L_1$  to  $L_3$ ) and 7 (5.5%) to genital, LGV and trachoma serotypes (A to K and  $L_1$  to  $L_3$ ) as shown in Table 12. 2 of positive chlamydial serology (titer 1:16) had no reaction to genital serotype, but reacted against A to C serotypes and the other reacted against  $L_1$  to  $L_3$  serotypes. The women whose positive serotype of D to K may be cross-reacted with serotype A to C and/or  $L_1$  to  $L_3$  (18).

No antichlamydial IgM was found in study sera (Table 15). This suggests that chlamydial infection from these women are not recent infection. All compared sera were not collected except one, of which have positive chlamydial culture and her baby developed conjunctivitis. IgG titer detected in the third trimester = 1:32, after 6 weeks, the titer was rising to 1:128, This suggests that she had recent chlamydial infection.

#### Symptoms of Lower Genital Tract Infection

From Table 17, it was shown that the symptoms of vaginal infection such as, vaginal discharge, vaginal itching, dysurea and frequent urination were not associated with chlamydial isolation ( $p > 0.05, \chi^2$  test). Solely vaginal bleeding is correlated with the isolation of

chlamydia in the first trimester. In the third trimester, only one woman had vaginal bleeding when speculum was inserted and the chlamydial culture was positive. The remaining women, included chlamydial culture positive and chlamydial culture negative, had no vaginal bleeding. Thus the association of vaginal bleeding in this trimester was not significant. In our experiment, one woman whose chlamydial culture was positive in the first trimester, no culture was taken in the third trimester because of her low insertion of the placenta. In addition, she had vaginal bleeding in the third trimester. After one month delivery, the culture was positive for C. trachomatis. Therefore, the vaginal bleeding was associated with chlamydial culture ( $p < 0.05$ ,  $\chi^2$  test).

In conclusion, with exception of vaginal bleeding, no symptom of lower genital tract infection was found to be related with chlamydial infection which has been confirmed by others (9,13-16). Harrison et al described that vaginal bleeding was associated with chlamydial infection (70).

#### History of Sexually Transmitted Disease (STD)

From Table 15, although history of STD was not associated with chlamydial culture, it associated with chlamydial serology (titer  $\geq 1 : 16$ ). This suggests that once these women had chlamydial infection and may be they had antibiotic treatment.

#### Age Distribution

Work from other studies has linked chlamydial infection to women of younger age (9,12,15,127-129). Similarly, our study was discovered that young women occurred C. trachomatis infection more than the old women. However, their age was not statistically associated with antichlamydial antibody (titer  $\geq 1 : 16$ ) even there

were more young subjects who had antichlamydial antibody (30.9%) than 21.1% of the older. This may be described the same as the history of STD that once these women had chlamydial infection, their antibody remained. In addition, immunity acquired against C. trachomatis in older groups could hamper positive isolation.

### Parity

In the previous study from Martín, the prevalence of C. trachomatis isolations were higher in primigravida women (127). Alternatively, other investigators did not find the correlation of primigravida with C. trachomatis (14, 128).

Our results showed that isolation of C. trachomatis from primigravida 17/93 (18.3%) were higher than from multigravida 4/47 (8.5%). Nevertheless, the difference was not statistically significant ( $p > 0.05$ ,  $\chi^2$  test). It was demonstrated by serological evidence that epidemiology of chlamydial infection from primigravida and multigravida were almost the same result (Table 17). These results suggest that high prevalence of chlamydial isolation from primigravida perhaps correlate with the age. The multigravida may be had more experience of sexually transmitted disease than the primigravida so they sought for treatment when they had some symptoms.

### Schooling

Recent study of Harrison et al showed that C. trachomatis was correlated with low educations (129). In other study, he found no correlation between educational level and the presence of C. trachomatis (128). The present study obtained the same result (Table 18).

The overall lack of correlation is probably due to the relative homogeneity of the population with regard to education; the fact that most women are infected at a young age. In addition, a minority pregnant women of over 12 years education were recruited in the study.

#### Antibiotic Susceptibility

This is the first report in Thailand that C. trachomatis were tested for drug susceptibility. The results found in this study on the antichlamydial activity of tetracycline and erythromycin were, generally, similar to those reported in earlier studies on cell cultures (57-59, 61-65). The studies have found tetracycline and erythromycin were the effective drugs in vitro against C. trachomatis.

In our study, no attempt was made to identify C. trachomatis strains by serotype. This does not seem to be important since all the strains tested were susceptible to both tetracycline and erythromycin.

In vitro susceptibility testing of C. trachomatis is not standardized at present. Prior studies have been carried out with difference method and a very limited number of strains (57,59,60). However, our results are similar to those previously reported.

RU 28965 is a new macrolide antibiotic which is an ether oxime derivative of erythromycin (130). It inhibited Neisseria gonorrhoeae at concentration similar to those of erythromycin. It was less active to anaerobic species than erythromycin (131). In 1980, Mourad et al reported the relative resistance to erythromycin in C. trachomatis (63). Therefore, RU 28965 was included in this

study.

This study showed that RU 28965 is also active against C. trachomatis strains. It is as effective as tetracycline and erythromycin.

MIC estimations broadly indicate which compounds are likely to be effective in the treatment of genital chlamydial infection; however, the result should be interpreted with caution, as in vitro the tidal concentration may differ considerably from the inhibitory concentration. Furthermore, if latency can be induced by antimicrobial drugs in vivo as well as in vitro, the concept of cure of these infections may require re-evaluation.



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### Further Study

The investigators suggest that the further study should be performed for the prevalence of C. trachomatis infection in conjunctivitis and pneumonitis of infants, since C. trachomatis cause conjunctivitis and pneumonitis in infants delivered through birth canal of infected mothers.

In this study, C. trachomatis were susceptible to tetracycline and erythromycin. These antibiotics are the drugs of choice in treating chlamydial infection, so the antibiotic susceptibility for recent chlamydial isolations should be frequently prepared to check for the resistance strain.



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