

# Transmission of chlamydial infections to sexual partners

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**SUMMARY** The incidence of chlamydial infections was studied in 33 male and 48 female regular sexual partners of 81 patients attending a sexually transmitted disease clinic who had chlamydial infections. *Chlamydia trachomatis* was isolated from 42% of the male partners and 62% of the female partners ( $p>0.05$ ). The number of infected partners was independent of the incidence of sexual intercourse and of the presenting symptoms. The use of condoms was the only contraceptive method that seemed to lower the risk of transmission of chlamydial infection.

If diagnostic facilities for *C trachomatis* are not available, and sexual partners of patients with chlamydial infection are treated epidemiologically, a high proportion of both men and women may be treated unnecessarily.

## Introduction

*Chlamydia trachomatis* is the most common sexually transmitted cause of urethritis, and the number of genitourinary chlamydial infections exceeds those caused by *Neisseria gonorrhoeae*. The risk of acquiring chlamydial infection from an infected sexual partner has only been addressed in few studies.<sup>1,2</sup> One reason could be that contact tracing is usually omitted in chlamydial infections, in contrast to gonococcal infections. The sexual partner of a patient with genitourinary chlamydial infections is often treated epidemiologically without attempting to confirm chlamydial infection in the partner. If the risk of chlamydial infection is only 25% for the male partner and 53% for the female partner as stated in a previous study,<sup>1</sup> epidemiological treatment should not be routine.

This study was therefore performed to elucidate further the incidence of chlamydial infections in regular sexual partners of men and women with genitourinary chlamydial infections.

## Patients and methods

At the Copenhagen outpatient clinic for sexually transmitted diseases (STD) all women are investigated

routinely for urethral and cervical chlamydial infections at their first visit to the clinic. Furthermore, material for culture for *C trachomatis* is obtained from all men with urethritis and from sexual contacts of patients with chlamydial infections. *C trachomatis* infection is diagnosed by a conventional culture method.<sup>3</sup>

During a three month period from April to July 1985 men and women with a proved chlamydial infection were asked to give their regular sexual partner written information about chlamydial infections and to invite them to attend the clinic for examination. A sexual partner was regarded as being regular if a relationship had lasted for more than one month. When attending the clinic, sexual partners were asked about methods of contraception and about the incidence of sexual intercourse during the preceding month. Patients and partners who had used antibiotics during the previous month were excluded.

## Results

The partners of 81 patients with chlamydial infections accepted the invitation to attend the clinic for examination and fulfilled the criteria for evaluation. The table shows the results obtained from the 33 men and 48 women. *C trachomatis* was isolated from 63% of the women and 42% of the men. The risk of harbouring *C trachomatis* was somewhat higher in women than in men, but the difference was not significant ( $\chi^2$  test,  $p>0.05$ ).

As shown in the table, there was no correlation between sexual activity (as estimated from the

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Accepted for publication 2 May 1986

TABLE Recovery of *Chlamydia trachomatis* from regular sexual partners of 48 men and 33 women with chlamydial infections, related to use of contraceptives, incidence of sexual intercourse in preceding month, and presence of urethritis or discharge, or both

	No (%) of men (n=33):		No (%) of women (n=48):	
	Positive 14 (42)	Negative 19 (58)	Positive 30 (63)	Negative 18 (38)
Contraceptive method:				
Oral	9 (64)	9 (47)	13 (43)	6 (33)
Intrauterine device	5 (36)	3 (16)	7 (23)	3 (17)
Condom	0	3 (16)	4 (13)	6 (33)
Incidence of sexual intercourse in previous month:				
None	0	4 (21)	6 (20)	3 (17)
>5	4 (29)	5 (26)	15 (50)	11 (61)
<5	10 (71)	14 (74)	15 (50)	7 (39)
Genitourinary symptoms:				
Present	6 (43)	8 (42)	13 (43)	8 (44)
Absent	8 (57)	11 (58)	17 (57)	10 (56)

incidence of sexual intercourse during the preceding month) and the number of partners who had chlamydial infection. The use of a condom was the only contraceptive method that seemed to lower the risk of infection with *C. trachomatis*; chlamydiae were cultured from only 31% of sexual partners of condom users compared with 67% of sexual partners using an intrauterine contraceptive device (IUCD) and 60% of those using an oral contraceptive. The differences, however, were not significant ( $p>0.05$ ).

Symptoms compatible with chlamydial infection (see table) were equally common in men and women whether they yielded chlamydiae or not.

## Discussion

The risk of transmitting chlamydial infections to sexual partners has been investigated by Lycke *et al.*,<sup>1</sup> who found that 25% of men and 53% of women partners harboured *C. trachomatis*. In two other studies the incidence of chlamydial infections was 64% in female partners of men with chlamydial urethritis<sup>2</sup> and 43% in female partners of men with non-gonococcal urethritis (NGU).<sup>4</sup>

The incidence (63%) of chlamydial infections of the female partners in the study published here was thus close to these findings. The percentage of male partners (42%) in our study who were chlamydia positive by culture was, however, higher than that found by Lycke *et al.*,<sup>1</sup> and furthermore was not appreciably different from that of the female partners. The higher infection rate of male partners in this study may have been due to patient selection. Lycke *et al.* examined all recent sexual partners,<sup>1</sup> whereas we examined only regular (for more than one month) sexual partners.

It seems likely therefore that the incidence of chlamydial infections in sexual partners of patients attending an STD clinic does not differ appreciably

between men and women. Symptoms did not help to indicate which of the sexual partners harboured *C. trachomatis*, and the incidence of sexual intercourse did not affect the number of partners with chlamydial infections.

The only contraceptive that seemed to lower the transmission of *C. trachomatis* to both male and female partners was the condom. Hilton *et al.* found a higher percentage of chlamydial infections in women using oral contraceptives,<sup>5</sup> and Lycke *et al.* found an association between the use of the IUCD and chlamydial infections.<sup>1</sup> In our study, however, the incidence of chlamydial infections in female partners using oral contraceptives was similar to the incidence in those using IUCDs.

The risk of transmitting *N. gonorrhoeae* to sexual partners was not examined in this study. In the study of Lycke *et al.* however, 82% of the female and 79% of the male partners of patients with gonococcal infection were also infected.<sup>1</sup> The risk of transmitting gonorrhoea thus seems to be somewhat higher than the risk of transmitting chlamydial infection.

In the case of gonorrhoea, most countries advocate contact tracing and treatment of sexual partners only when the organism is identified, even though 80% of partners will be infected. In contrast, chlamydial infections seem to be managed differently, not only from one country to another, but also within a country. In Denmark there is legislation about gonococcal but not about chlamydial infection. This fact however, should not hinder the appropriate management of both these infections.

It is well known that in patients attending STD clinics the number with chlamydial infections exceeds that with gonorrhoea and that the consequences of untreated chlamydial infections may be serious. As most women and 25% of men with chlamydial infection are symptomless,<sup>6</sup> screening both men and women

for *N gonorrhoeae* and *C trachomatis* should be routine at the first attendance at an STD clinic. Furthermore, it should be routine to contact trace all sexual partners of patients with chlamydial infection.

A lack of laboratory diagnostic facilities for *C trachomatis* and the cost of establishing such facilities have contributed to the difficulties in establishing routine screening for chlamydiae in many areas. Under such circumstances it may be necessary to treat men with NGU and their female partners without attempting to identify the organism in genital material. If this is done about 40% of female and 60% of male partners may be treated unnecessarily. During the past few years direct diagnostic tests for *C trachomatis* using polyclonal and monoclonal antibodies have been evaluated. These tests are quick, simple, and highly specific and sensitive,<sup>7-9</sup> and they give an opportunity to establish a diagnostic service for *C trachomatis*.

#### References

1. Lycke E, Löwhagen G-B, Hallhagen G, Johannisson G, Ramstedt K. The risk of transmission of genital *Chlamydia trachomatis* infection is less than that of genital *Neisseria gonorrhoeae* infection. *Sex Transm Dis* 1980;7:6-10.
2. Paavonen J, Kousa M, Saikku P, Vesterinen E, Jansson E, Lassus A. Examination of men with nongonococcal urethritis and their sexual partners for *Chlamydia trachomatis* and *Ureaplasma urealyticum*. *Sex Transm Dis* 1978;5:93-6.
3. Ripa KT, Mårdh P-A. New simplified culture technique for *Chlamydia trachomatis*. In: Hobson D, Holmes KK, eds. *Nongonococcal urethritis and related infections*. Washington DC: American Society for Microbiology, 1977:323-7.
4. Bradley MG, Hobson D, Lee N, Tait IA, Rees E. Chlamydial infections of the urethra in women. *Genitourin Med* 1985;61:371-5.
5. Hilton AL, Richmond SJ, Milne JD, Hindley F, Clarke SKR. Chlamydia A in the female genital tract. *British Journal of Venereal Diseases* 1974;50:1-10.
6. Stamm WE, Koutsky LA, Benedetti JK, Jourden JL, Brunham RC, Holmes KK. *Chlamydia trachomatis* urethral infections in men. *Ann Intern Med* 1984;100:47-51.
7. Tam MR, Stamm WE, Handsfield HH, et al. Culture independent diagnosis of *Chlamydia trachomatis* using monoclonal antibodies. *N Engl J Med* 1984;310:1146-50.
8. Jones MF, Smith TF, Houghlum AJ, Herrmann JE. Detection of *Chlamydia trachomatis* in genital specimens by the Chlamydiazyme test. *J Clin Microbiol* 1984;20:465-6.
9. Teare EL, Sexton C, Lim F, McManus T, Cuttley AH, Hodgson J. Conventional tissue culture compared with rapid immunofluorescence for identifying *Chlamydia trachomatis* in specimens from patients attending a genitourinary clinic. *Genitourin Med* 1985;61:379-82.