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Urethritis and cervicitis with special reference to *Chlamydia trachomatis* and *Mycoplasma genitalium* Diagnostic and epidemiological aspects

Lars Falk

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Fakultetsopponent

är docent Torvald Ripa, Klinisk mikrobiologi och vårdhygien, Länssjukhuset Halmstad.

FACULTY OF HEALTH SCIENCES
LINKÖPING UNIVERSITY

Division of Dermatology and Venereology
Department of Biomedicine and Surgery
Faculty of Health Sciences, Linköpings Universitet
SE-581 85 Linköping, Sweden

and

Department of Dermatology and Venereology
Örebro University Hospital, SE-701 85 Örebro, Sweden

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ABSTRACT

The aim of this thesis was to elucidate urethritis and cervicitis and the possible causes with special reference to *Chlamydia trachomatis* and *Mycoplasma genitalium*. Despite mandatory partner notification legislated in 1988, the incidence of *C trachomatis* infection in Sweden has undergone a 10% annual increase since 1997, following a decline in the early 1990s. Non-chlamydial-non-gonococcal urethritis (and cervicitis) (NCNGU) is more common than chlamydial infection and gonorrhoea at Sexually transmitted disease (STD) clinics. *Mycoplasma genitalium*, originally isolated in 1980, is one probably important cause of NCNGU.

Specimens from men and women infected with *C trachomatis* who attended the Örebro STD-clinic (1999-2000) were genotyped by sequencing of the *omp 1*, which encodes the major outer membrane protein (MOMP) (**I, II**). Both invasive and first void urine (FVU) specimens (n=237) were successfully sequenced from 231 *C trachomatis*-positive individuals (96 women and 135 men). Genotype E was the most common strain (47%) followed by F (17%) and K (9%). The prevalence of Ba, D, D/B-120, D/B-185, G, H, Ia and J genotypes was 0.4 to 6%. There were few gap mutations compared with reference strains. 161 sexual networks comprising 688 individuals were compiled. Specimens were sequenced from at least two patients in 47 of 161 networks. In seven of these 47 networks (15%) there were discrepant genotypes. At the follow-up visit five of 204 individuals (2%) were still *C trachomatis*-positive. Two harboured a new genotype and thus had contracted a new *C trachomatis* infection. Partner notification was successful in only 30 of 161 networks (19%), meaning that all elicited partners were tested and transmission of infection ceased. The main reason for non-success was insufficient information for partner identification from the index patients and, if the partner attended another clinic, the results of the *C trachomatis* test were prohibited by Swedish law from being revealed to the tracer.

Microscopic signs, symptoms of infection and prevalence of *C trachomatis* and *M genitalium* were compared among men and women attending the Örebro STD-clinic in 2000 (**III, IV**). In a study performed in 2002, 59 young women invited to the national cervical cancer-screening program were tested for *C trachomatis* and *M genitalium* (**IV**). There was no statistically significant difference in microscopic signs in men or women infected with either of the bacteria. Women infected with *C trachomatis* or *M genitalium* more often had microscopic signs of infection than those women in the cancer screening group without infection, and the difference was statistically significant (**IV**). Symptomatic urethritis was more prevalent in *M genitalium* than in *C trachomatis* infected men (**III**). The prevalence of *C trachomatis* and *M genitalium* in male STD-attendees was 12% and 7%, respectively. In female STD-attendees the corresponding figures were 10% and 6%, respectively, whereas only one woman in the screening group was *C trachomatis*-positive and none was infected with *M genitalium* (**IV**). Both *C trachomatis* and *M genitalium* were found significantly more often in partners of men and partners of women with the corresponding infection, than in partners of men with a non specific urethritis (NSU) or women with a non-specific urethritis/cervicitis. These studies show that *M genitalium* is a common infection among STD-clinic attendees and that it is not a widespread commensal bacterium in society.

In an open treatment pilot study (**V**) in men and women infected with *M genitalium*, the standard treatment for urethritis and cervicitis, i.e. tetracycline, was compared with azithromycin 500 mg the first day and 250 mg the following four days. Tetracyclines did not eradicate *M. genitalium* in 71% of the women and in 63% of the men, whereas all who were treated with azithromycin were *M. genitalium* negative at the follow-up visit. Randomised controlled trials (RCT) are needed to study azithromycin in different dosages.

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