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The performance of microscopic cervicitis for the detection of chlamydial infection

The diagnosis of chlamydial cervicitis by microscopy provides an opportunity for early treatment of infected patients and possible reduction in the incidence of pelvic inflammatory disease. Because of utilisation of insensitive methods for diagnosis of *Chlamydia trachomatis*,[1] the conclusion of previous studies on the definition of chlamydial cervicitis has been inconsistent.[2 3]

The aim of this study was to define the most sensitive and specific cut-off for polymorphonuclear cell (PMN) counts associated with chlamydial cervicitis diagnosed by a nucleic acid amplification test.

This was a prospective double blinded study on consecutive women older than 16 years and not menstruating attending the Department of GUM in Edinburgh for screening of sexually transmitted infections (STI) between May and September 2002.

Patients were tested for *Neisseria gonorrhoeae* diagnosed by inoculation of ano-genital materials on modified New York City culture media (MNYC) and for *C trachomatis* detected by testing endocervical material by ligase chain reaction (LCR). Gram stained and saline mount vaginal smears were utilised for the detection of bacterial vaginosis (BV) and *Trichomonas vaginalis* (TV) respectively. The diagnosis of BV was based on the modified Amsel's criteria.

Cervical smears were examined by GB who was blinded to the outcome of the clinical and microbiological tests of patients. The median of PMN counts in five non-adjacent ×1000 microscopy fields in Gram stained endocervical smears was calculated. Slides with more than 100 squamous cells per slide or more than 100 bacteria per ×1000 microscopy fields were deemed contaminated with vaginal flora and were excluded from analysis.

The χ^2 and Mann-Whitney U tests were conducted for categorical and non-parametric data respectively. A smear was positive only if it related to a positive LCR result.

Of the 138 consenting patients with valid cervical smears, 17 (12%) had chlamydial infections. None of the patients had infection with *N gonorrhoeae* or TV. Patients with chlamydial cervicitis had median PMN counts of 27 (interquartile range (4.5–34.5)) compared with that of 7 (1–18.5) among uninfected patients ($p<0.04$).

Table 1 shows the sensitivity and specificity of different PMN cut-offs in cervical smears for the detection of chlamydial infection. Limitation of cervical microscopy to women of 24 years or younger, those with BV, or women on oral contraceptive pill was not associated with better sensitivity or specificity of cervical smears (data not shown).

In our study, the prevalence of chlamydial infection among studied women was similar to that of reported elsewhere in United Kingdom.[4] The sensitivity of cut-off of ⩾5 PMN cells ×1000 microscopy field was higher than that reported by studies using enzyme immunoassay for diagnosis of *C trachomatis*. This could be due to the superior performance of LCR in diagnosis of chlamydial infection.[5] Increasing the cut-off of chlamydial cervicitis improved the specificity at the expense of reduction in the sensitivity.

Although some studies have suggested an association between chlamydial cervicitis and presence of BV,[6 7] our study did not show such a relation.

In conclusion, chlamydial cervicitis may be used for early treatment of patients who may not follow up their results in the settings with high prevalence of infection. In this respect a cut-off of ⩾5 PMN appears to have a reasonable sensitivity.

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Table 1 The sensitivity and specificity of different PMN cut-offs in cervical smears for detection of chlamydial infection (total 138, prevalence of chlamydia 12.31%)

PMN cut-off criteria	No of cervical smears	Positive chlamydia test	Sensitivity (%)	Specificity (%)	PPV† (%)	NPV‡ (%)
⩾5 PMN/hpf*	85	13	76	40	15	92
⩾10 PMN/hpf	56	10	59	62	18	91
⩾15 PMN/hpf	48	10	59	69	21	92
⩾20 PMN/hpf	39	9	53	75	23	92
⩾25 PMN/hpf	31	9	53	82	29	92

*High power field: ×1000 microscopy.
†Positive predictive value.
‡Negative predictive value.

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Chlamydia trachomatis heat shock protein 60 (cHSP60) antibodies in women without and with tubal pathology using a new commercially available assay

Besides commercially available serological assays that detect antibodies to major outer membrane protein (MOMP)[1] and lipopolysaccharide (LPS) ''in-house'' chlamydial heat shock protein 60 (cHSP60) assays are extensively used in assessing serological responses to urogenital *Chlamydia trachomatis* infection. Although comparison of the different ''in-house'' assays is difficult owing to a lack of standardisation, there is a consensus among the users of these assays that the anti-cHSP60 responses in women increase with the severity of *C trachomatis* associated disease, leading to the suggestion that the high amino acid sequence homology between

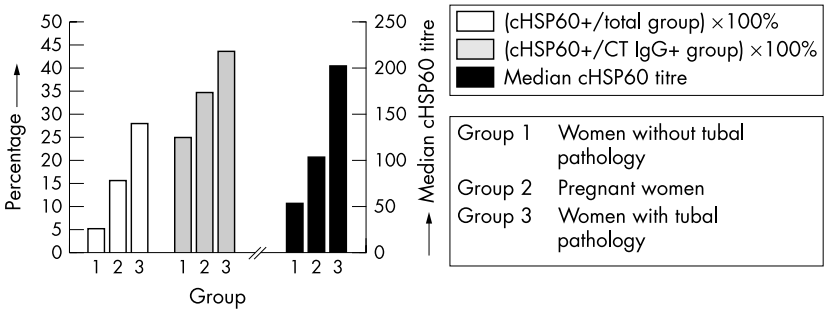

Figure 1 *Chlamydia trachomatis* IgG and cHSP60 antibody responses in Dutch white women with different degrees of tubal pathology.

chlamydial and human HSP60 results in autoimmune mediated fallopian tube damage. Owing to the significance of the possible association of the response to cHSP60 and progressive disease, a commercially produced assay that employs defined cHSP60 epitopes should allow for the comparison of results obtained in different laboratories, as well as forward the use of cHSP60 as a diagnostic tool if the assay proves to be relevant in predicting pathology or clinical outcome of a urogenital chlamydial infection.

This study evaluated a recently introduced commercially available cHSP60 serological assay and determined the anti-cHSP60 responses in three gynaecologically well defined groups of women.

Group 1 consisted of women without tubal pathology as assessed by either hysterosalpingography or laparoscopy (n = 21), group 2 consisted of pregnant women (unknown tubal status, proved fertility; n = 86), and group 3 consisted of women with confirmed (based on hysterosalpingography or laparoscopy) tubal pathology (n = 11). *C trachomatis* positivity was assessed previously using one of the following serological assays: microimmunofluorescence (MIF) (BioMérieux's Hertogenbosch, Netherlands), BAG Chlamydia EIA (Biologische Analysensystem GmbH, Lich, Germany) and the CT-pELISA (Medac, Wedel, Germany). The study groups and techniques were described previously.[2 3] The cHSP60 assay (Medac, Wedel, Germany) was performed according to the manufacturer's instructions.

Results are shown in figure 1. *C trachomatis* IgG positivity was previously determined to be 19% for group 1, 40% for group 2, and 64% for group 3, showing the expected clear difference in IgG seroprevalence between women with and without procedure confirmed tubal pathology, while an intermediate prevalence observed in pregnant women. The same pattern but with lesser incidence was observed in the anti-cHSP60 responses being 4.8%, 16%, and 27%, for groups 1–3, respectively (χ^2 test for trend: $\chi^2 = 3.1$, p = 0.079, group 1 *v* group 3: p = 0.096, OR 10.6). The incidences of anti-cHSP60 were increased in the CT IgG positive subgroups to 25%, 35%, and 43%, for groups 1–3, respectively (see lower panel in fig 1), while only 3.8% anti-cHSP60 titres were observed in the *C trachomatis* IgG negative subgroups, all in subgroup 2 (unknown tubal status, proved fertility). This indicates that the concordance between CT IgG and cHSP60 positivity is high, almost 90%; however, clearly a different subgroup of women is identified by the cHSP60 assay since only 40% of the *C trachomatis* IgG positive women has a cHSP60 response (measurement of agreement: kappa 0.371). Finally, the median cHSP60 titres increased from groups 1–3: 50, 100, and 200, respectively, suggesting an association between the level of cHSP60 response and tubal pathology.

As far as we know this is the first study evaluating the commercially available cHSP60 assay in women with different degrees of tubal pathology. Two abstracts were published in the ISSTDR meeting Vienna, Austria in 2002[4 5] on cHSP60 antibodies in women with pelvic inflammatory disease (85% in patients with *C trachomatis* positive swabs and patients with occluded tubes, 20% in blood donors) and in women with open or occluded fallopian tubes (31% and 70% respectively).

The standardisation provided through this new commercially available assay will potentially enhance the comparability of cHSP60 results between laboratories. The results presented here, although obtained in small but well defined groups, look suggestively promising. Indeed, power calculations (alpha = 0.5, beta = 0.1) show that doubling (1.7 times) the size of the (sub)groups would results in significant p values instead of clear trends. However, further studies are needed in larger groups with different degrees of pathology because of *C trachomatis* infections to further determine the diagnostic, prognostic, and clinical relevance of this new assay.

Contributors

CJB, drafting of the manuscript, involved in the initial collection of the cohort, collection of the clinical data, and laboratory serology analyses for IgG *C trachomatis*, corresponding author; JS, *C trachomatis* heat shock protein 60 serology, data management, critically reading the manuscript; PMO, providing the setting for and supervision of all serology assays performed to determine *C trachomatis* IgG presence, critically reading the manuscript; JBT, supervision of the data collection, critically reading the manuscript; PJD, providing setting and logistics for cohort collection, supervision of the clinical data collection, critically reading the manuscript; ASP, providing the setting for JS to perform the *C trachomatis* work, critically reading the manuscript; SAM, principal investigator for this manuscript and the *Chlamydia trachomatis* research line, drafting of the manuscript, data analyses, and overall supervision.

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The prevalence of excessive alcohol consumption and the acceptability of brief advice in a sexual health clinic: cross sectional survey

Excessive alcohol consumption has been implicated in unsafe sex and the spread of sexually transmitted infections.[1] Cross sectional surveys in sexual health clinics have shown that most patients drink alcohol regularly,[2] but the proportion misusing alcohol has not been reported. Brief interventions for alcohol misuse have been shown to be beneficial across a range of medical settings,[3] but their use in sexual health clinics has not been explored. We therefore examined the acceptability of offering brief advice to people identified as misusing alcohol in a sexual health clinic.

Two doctors (PCL, CB) set out to recruit consecutive attendees at walk-in clinics at the Jefferiss Wing Centre for Sexual Health at St Mary's Hospital in London over a 3 month period. Consenting patients were interviewed using the Paddington Alcohol Test (PAT).[4] Those drinking excessively were offered a self help leaflet, ''Think about Drink,'' and/or an appointment with an alcohol health worker (AHW). Acceptance of brief intervention was noted, and AHW records examined to find