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Reesink-Peters, N.; Ossewaarde, J.M.; van der Zee, A.G.J.; Quint, W.G.V.; Burger, M.P.M.; Adriaanse, A.H.

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No association of anti-\textit{Chlamydia trachomatis}
antibodies and severity of cervical neoplasia


**Objective:** To explore whether the presence of \textit{Chlamydia trachomatis} antibodies is associated with the severity of neoplastic lesions in women with cervical dyskaryosis.

**Methods:** In a cross sectional study in two groups of women referred for an abnormal Papanicolaou smear (group A: 296, group B: 331 women) blood samples were analysed for antichlamydial antibodies by enzyme immunoassay. Cervical neoplasia was graded histologically.

**Results:** In group A no association was found between increasing grade of CIN and the presence of antichlamydial antibodies. The proportion (93%) of women with antichlamydial antibodies was higher in 14 women with (micro)invasive carcinoma than in women with CIN (35%). As the high prevalence of antichlamydial antibodies in women with cervical carcinoma is not consistent with prevalences reported in recent literature, we analysed a second group of women in which indeed the high prevalence was not confirmed.

**Conclusion:** Our results suggest that the presence of circulating antichlamydial antibodies is not associated with the severity of neoplastic lesions and it seems unlikely that \textit{C trachomatis} has a role in the progression of cervical neoplasia.

*(Sex Transm Inf 2001;77:101–102)*

Keywords: cervical neoplasia; \textit{Chlamydia trachomatis}
Table 1 Antibodies against C trachomatis and the grade of neoplasia

<table>
<thead>
<tr>
<th>Grade of neoplasia</th>
<th>None</th>
<th>CIN I</th>
<th>CIN II</th>
<th>CIN III</th>
<th>(M)IC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>16/40 (40)</td>
<td>8/34 (24)</td>
<td>14/43 (33)</td>
<td>63/165 (38)</td>
<td>13/14 (93)*</td>
</tr>
<tr>
<td>Age (median, interquartile range)</td>
<td>35</td>
<td>29–39</td>
<td>35</td>
<td>31–42</td>
<td></td>
</tr>
<tr>
<td>Sexarche ≤17 years (%), 95% CI</td>
<td>4</td>
<td>2–10</td>
<td>4</td>
<td>2–8</td>
<td></td>
</tr>
<tr>
<td>Smoker (%), 95% CI</td>
<td>65</td>
<td>59–70</td>
<td>69</td>
<td>64–75</td>
<td></td>
</tr>
<tr>
<td>No dysplasia (%), 95% CI</td>
<td>14</td>
<td>9.6–17</td>
<td>5.7</td>
<td>3.5–8.8</td>
<td></td>
</tr>
<tr>
<td>CIN I (%), 95% CI</td>
<td>12</td>
<td>7.9–15</td>
<td>15</td>
<td>11–19</td>
<td></td>
</tr>
<tr>
<td>CIN II (%), 95% CI</td>
<td>15</td>
<td>11–19</td>
<td>25</td>
<td>20–29</td>
<td></td>
</tr>
<tr>
<td>CIN III (%), 95% CI</td>
<td>56</td>
<td>50–61</td>
<td>46</td>
<td>41–52</td>
<td></td>
</tr>
<tr>
<td>(M)IC (%), 95% CI</td>
<td>4.7</td>
<td>2.6–7.8</td>
<td>8.2</td>
<td>5.5–11.7</td>
<td></td>
</tr>
</tbody>
</table>

χ² test, p<0.001.

χ² test for trend was not significant for both groups.

Table 2 Patient characteristics for group A and B

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (median, interquartile range)</td>
<td>35</td>
</tr>
<tr>
<td>Life time number of sexual partners (median, interquartile range)</td>
<td>4</td>
</tr>
<tr>
<td>Sexarche ≤17 years (%), 95% CI</td>
<td>52</td>
</tr>
<tr>
<td>Smoker (%), 95% CI</td>
<td>65</td>
</tr>
<tr>
<td>No dysplasia (%), 95% CI</td>
<td>14</td>
</tr>
<tr>
<td>CIN I (%), 95% CI</td>
<td>12</td>
</tr>
<tr>
<td>CIN II (%), 95% CI</td>
<td>15</td>
</tr>
<tr>
<td>CIN III (%), 95% CI</td>
<td>56</td>
</tr>
<tr>
<td>(M)IC (%), 95% CI</td>
<td>4.7</td>
</tr>
</tbody>
</table>

Increasing severity of CIN. However, the prevalence of C trachomatis antibodies was significantly higher in the group of women with (M)IC than in women with CIN (table 1).

Patient characteristics in group B met the characteristics of group A apart from the proportion of women diagnosed with no dysplasia or CIN II, for which the 95% confidence intervals did not overlap (table 2). Serum antibodies against C trachomatis were found in 164 (50%) of 331 women in group B. No increasing trend was observed for the proportion of women positive for antichlamydial antibodies with increasing severity of CIN (table 1). The prevalence of C trachomatis antibodies in women with (M)IC was not significantly higher than in women with CIN.

Discussion

Differences between groups A and B might occur because of systematic differences between the two groups or because of chance. Effort was made to reduce systematic differences: periodate treated EIA was performed for both groups separately, but the same reference serum was used. Criteria for eligibility for group A and group B corresponded. We therefore have no other explanation than that the difference in the proportion of women with no dysplasia and CIN II is due to chance. The reported differences appeared to have no implication for our results.

Overall prevalences of antichlamydial antibodies were comparable for groups A and B. However, 93% of the women with (M)IC in group A had antichlamydial antibodies compared with 55% in group B. Prevalences reported by others are comparable with the prevalence found in group B. The number of women with (M)IC in group A is low. The 95% CI of the prevalence is very wide in this group and overlaps the 95% CI of the proportion observed in the same category of group B (table 2). Chance has a great effect on small study populations.

The role of C trachomatis in the aetiology of cervical neoplasia is hard to interpret. Many studies reported antichlamydial antibodies to be more frequent in women with cervical neoplasia than in controls. This might indicate that C trachomatis has a causal role in cervical carcinogenesis. Our results suggest that C trachomatis does not favour the progression from CIN to invasive disease. However, it should be kept in mind that these serological data can not exclude the possible involvement of local factors induced by (chronic) C trachomatis infections.

Contributors: NR was the main author of the article and performed the statistical analysis; JMO performed the EIAs and was the author of the C trachomatis methods section; AGJVdZ collected the patient samples of group B whereas MPMB collected the samples for group A and supervised the research programme; WGVQ advised on the methodology of the study and AHA was coauthor of the article and supervisor.