Identification of HPV vaccine-genotypes in a female STI population group

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Background and Objectives
Women harbouring HPV genotypes are at risk to develop either genital warts or cervical dysplasia as a precursor of cervical carcinoma.

Materials and Methods
Data were collected from 4230 patients between February and July 2012. Clinical diagnosis was assessed by the referring physician. Material was either delivered or sent to the Outpatients’ Centre laboratory or sampled and processed at the Outpatients’ Centre. Samples were collected either from the cervical area or genital lesion by cytobrush DNA-PAP Cervical Sampler. Viral DNA detection and HPV genotyping was performed using Papillo Check PCR.

Results
Out of all 1485 patients with cervical dysplasia and cervical cancer precursors (including diagnosis PAP III, IIID, IV and CIN I, II, III) 55.2% were HPV high-risk positive. In 29.5% infection with HPV 16, and in 6.1% HPV 18 could be detected. Furthermore, referring to vaccination cross immunity HPV 31, 33, 45, and 52 were detected in 14.9%, 7.7%, 2.9% and 6.2% respectively.

Out of 1149 patients with diagnosis „suspected HPV“ 46% showed HPV high-risk positivity. Out of patients with diagnosis „control/ control of partner“ (n=141) 53% and with diagnosis „erosion of portio“ (n=185) 17% were HPV high-risk positive.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>HPV high-risk +</th>
<th>HPV 16</th>
<th>HPV 18</th>
<th>HPV 31</th>
<th>HPV 45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical dysplasia and cervical cancer precursors (n=1485)</td>
<td>55.2%</td>
<td>29.5%</td>
<td>61.1%</td>
<td>14.9%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Suspected HPV (n=1149)</td>
<td>46%</td>
<td>23%</td>
<td>3%</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Control/ control of partner (n=141)</td>
<td>53%</td>
<td>23%</td>
<td>5%</td>
<td>15%</td>
<td>4%</td>
</tr>
<tr>
<td>Erosion of portio (n=185)</td>
<td>17%</td>
<td>19%</td>
<td>3%</td>
<td>13%</td>
<td>0%</td>
</tr>
</tbody>
</table>

The identification of genotypes evaluated for different age groups (20 to 30 and 50 to 60 years) in patients with cervical dysplasia and cervical cancer precursors shows that both types, HPV 16 and 18, were more often detected in young women and decreased with increasing age. In contrast, an increase of HPV high-risk types other than 16 and 18, such as HPV 45 and 56, were more often identified in older women.

Conclusion
- Higher number of HPV 16 and 18 in younger women
- Decreasing number of HPV 16 and 18 and rising number of HPV 45 and 56 in older women
- Vaccination in young female patients would have prevented cervical dysplastic lesions in at least 35.6% of cases
- Using the quadrivalent vaccine genital warts would have been prevented in 71.2% of cases
- Higher detection rate of HPV low-risk types in genital warts when directly sampled in Outpatients’ Centre