Comparison of Cervical Cancer Screening by Visual Inspection with Acetic Acid Versus Pap Smear in Pregnancy

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Disclosures

• No financial relationships or conflict of interest to disclose
• Cervical Cancer numbers 122,844 per year
• Deaths due to Cervical Cancer 67,477 per year
INDIA & CERVICAL CANCER

• No national screening program
• Pregnancy - only time women in India approach a health professional
• Antenatal visits can provide an excellent opportunity for opportunistic screening.
Screening In Pregnancy - Problems

- Standard Screening Guidelines do not recommend screening in pregnancy unless previous smear is abnormal
- Cytology – Interpretation difficult - need experienced cytologist
- ? HPV testing - most pregnant Indian women are <30 years
- Visual Methods in non-pregnant women - Reduction in mortality
- Not tested in pregnant women
Aims and Objectives

To identify the prevalence of abnormal Pap smear and VIA+lesions during pregnancy

To compare the two methods for screening
Methodology

- Prospective cohort study
- IEC approval
- Antenatal clinic, Safdarjung Hospital, New Delhi, India.
- Pregnant women <28 weeks were randomly recruited from the antenatal clinic.
Exclusion criteria

- Active vaginitis
- Preterm premature rupture of membranes
- Patient unwilling for examination and follow-up
Methodology

All eligible women randomly allocated after informed consent

Pap smear by Ayre spatula followed by VIA

Colposcopy if VIA + or Pap was ASCUS or more

Colposcopic grading of acetowhite lesions by Swede score, bx if ≥ 8

Follow-up Colposcopy at 28 & 34 weeks & 3 months post-partum
Methodology

The two tests were compared for their sensitivity, specificity, and predictive values for detecting CIN in pregnancy with colposcopy as the reference standard.
Results

370 low risk pregnant women
Age group 20-39 years
Mean age - 24.7 years
None had a previous Pap smear
Mean gestational age at the time of screening - 14.6 weeks.
Distribution as per obstetric status

- Primi: 39%
- G2: 30%
- G3: 17%
- G4: 10%
- G5: 3%
- G6: 1%
- G5: 3%
Results of Screening

Pap absence of endocervical cells- 29

Abnormal Pap smear-5.9%

VIA positive- 8.4 %
Pap Smear Report

<table>
<thead>
<tr>
<th>Condition</th>
<th>No of Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>NILM</td>
<td>344</td>
</tr>
<tr>
<td>ASCUS</td>
<td>13</td>
</tr>
<tr>
<td>LSIL</td>
<td>4</td>
</tr>
<tr>
<td>AGC</td>
<td>5</td>
</tr>
</tbody>
</table>
Benign changes

Reactive

Candida
ASCUS
AGC
## VIA Results

<table>
<thead>
<tr>
<th></th>
<th>Number of women(N)</th>
<th>Percent(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIA Negative</td>
<td>339</td>
<td>91.6</td>
</tr>
<tr>
<td>VIA Positive</td>
<td>31</td>
<td>8.4</td>
</tr>
</tbody>
</table>
Colposcopic Findings

(n=12) SScore<5

Abnormal PAP(n=3) VIA+(n=12)
Colposcopic Findings

(n=4) SScore 5-8

Abnormal Pap (n=4) ▷ VIA + (n=3)
Colposcopy

Total Colposcopies done (43)

- Pap Abnormal (12)
  - Colposcopy Abnormal (1)
  - Colposcopy Normal (11)
- VIA Positive (21)
  - Colposcopy Abnormal (9)
  - Colposcopy Normal (12)
- Both PAP & VIA+ (10)
  - Colposcopy Abnormal (6)
  - Colposcopy Normal (4)
Colposcopy Vs Abnormal Pap & VIA +

<table>
<thead>
<tr>
<th>Colposcopy Findings</th>
<th>Abnormal Pap (n=22)</th>
<th>VIA Positive (n=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Grade CIN (n=12)</td>
<td>3 (13.6%)</td>
<td>12 (38.7%)</td>
</tr>
<tr>
<td>(Swede score &lt;5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Grade CIN (n=4)</td>
<td>4 (18.1%)</td>
<td>3 (9.7%)</td>
</tr>
<tr>
<td>(Swede score 5-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NORMAL</td>
<td>15 (68.2%)</td>
<td>16 (51.6%)</td>
</tr>
</tbody>
</table>
Low Grade Lesion
## Correlation Of Pap Smear & Colposcopy

<table>
<thead>
<tr>
<th>Abnormal Pap</th>
<th>Low Grade CIN-n(%)</th>
<th>High Grade CIN-n(%)</th>
<th>NORMAL COLPOSCOPY n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCUS (n=13)</td>
<td>3 (23.1%)</td>
<td>1 (7.7%)</td>
<td>10 (76.9%)</td>
</tr>
<tr>
<td>LSIL (n=4)</td>
<td>0</td>
<td>3 (75%)</td>
<td>1 (25%)</td>
</tr>
<tr>
<td>AGC (n=5)</td>
<td>0</td>
<td>0</td>
<td>5 (100%)</td>
</tr>
</tbody>
</table>
## Comparative analysis of the two tests

<table>
<thead>
<tr>
<th></th>
<th>Pap smear</th>
<th>VIA</th>
<th>Both PAP Smear and VIA positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity (%)</td>
<td>43.8</td>
<td>93.75</td>
<td>37.5</td>
</tr>
<tr>
<td>Specificity (%)</td>
<td>95.8</td>
<td>95.4</td>
<td>98.8</td>
</tr>
<tr>
<td>Negative predictive value (%)</td>
<td>97.4</td>
<td>99.71</td>
<td>97.2</td>
</tr>
<tr>
<td>Positive predictive value (%)</td>
<td>31.8</td>
<td>48.4</td>
<td>60</td>
</tr>
<tr>
<td>P value</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
## Side Effects

<table>
<thead>
<tr>
<th>Side Effect</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Bleeding</td>
<td>58</td>
</tr>
<tr>
<td>Pain Score</td>
<td>0-218</td>
</tr>
<tr>
<td></td>
<td>1-107</td>
</tr>
<tr>
<td></td>
<td>2-35</td>
</tr>
<tr>
<td></td>
<td>3-10</td>
</tr>
</tbody>
</table>
Discussion
Cytology in Pregnancy

Abnormal PAP 0.5-3%, 5-8%\textsuperscript{1}
Indian studies-0.9% \textsuperscript{2}
Our study abnormal Pap-5.94%

Difficulties with VIA

- Mucus-false positivity
- Asymptomatic vaginitis
- Discomfort with speculum examination
- Large cervix
- Vascular cervix
Colposcopy in Pregnancy

Karrberg et al evaluated Swede score in pregnancy
261 pregnant women had Colposcopy
Swede score ≥ 5 – High Grade disease
Swede Score ≥ 8 – Cancer

*Acta Obstetricia et Gynecologica Scandinavica, Volume 91, Issue 8, August 2012, Pages 952–958*
Conclusions-I

- No previous study on Visual Methods in Pregnancy
- VIA has significantly better sensitivity than cytology
- Specificity & NPV similar
- Both cytology and VIA positive gives the best overall result.
- LSIL had best correlation with colposcopy.
Conclusions II

- Screening safe & well tolerated by most women
- Overall prevalence of CIN in pregnancy 4.32%
- Low Grade CIN 3.24%
- High Grade 1.08%
- VIA practical alternative than Cytology
- Low cost, immediate result
See you in Hyderabad India