Visual inspection with acetic acid (VIA): Evidence to date

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Original source:
Alliance for Cervical Cancer Prevention (ACCP)
www.alliance-cxca.org
Overview:

- Description of VIA and how it works
- Infrastructure requirements
- What test results mean
- Test performance
- Strengths and limitations
- Program implications in low-resource settings
Types of visual inspection tests:

- **Visual inspection with acetic acid (VIA)** can be done with the naked eye (also called cervicoscopy or direct visual inspection [DVI]), or with low magnification (also called gynoscopy, aided VI, or VIAM).

- **Visual inspection with Lugol’s iodine (VILI)**, also known as Schiller’s test, uses Lugol’s iodine instead of acetic acid.
What does VIA involve?

- Performing a vaginal speculum exam during which a health care provider applies dilute (3-5%) acetic acid (vinegar) to the cervix.
  - Abnormal tissue temporarily appears white when exposed to vinegar.
- Viewing the cervix with the naked eye to identify color changes on the cervix.
- Determining whether the test result is positive or negative for possible precancerous lesions or cancer.
What infrastructure does VIA require?

- Private exam area
- Examination table
- Trained health professionals
- Adequate light source
- Sterile vaginal speculum
- New examination gloves, or HLD surgical gloves
- Large cotton swabs
- Dilute (3-5%) acetic acid (vinegar) and a small bowl
- Containers with 0.5% chlorine solution
- A plastic bucket with a plastic bag
- Quality assurance system to maximize accuracy
## Categories for VIA test results:

<table>
<thead>
<tr>
<th>VIA Category</th>
<th>Clinical Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test-negative</td>
<td>No acetowhite lesions or faint acetowhite lesions; polyp, cervicitis, inflammation, Nabothian cysts.</td>
</tr>
<tr>
<td>Test-positive</td>
<td>Sharp, distinct, well-defined, dense (opaque/dull or oyster white) acetowhite areas—with or without raised margins touching the squamocolumnar junction (SCJ); leukoplakia and warts.</td>
</tr>
<tr>
<td>Suspicious for cancer</td>
<td>Clinically visible ulcerative, cauliflower-like growth or ulcer; oozing and/or bleeding on touch.</td>
</tr>
</tbody>
</table>
Categories for VIA tests results:

- Acetowhite area far from squamocolumnar junction (SCJ) and not touching it is insignificant.
- Acetowhite area adjacent to SCJ is significant.

Negative

Positive

Photo source: JHPIEGO
Categories for VIA tests results:

Suspicious for cancer

Photo source: PAHO, Jose Jeronimo
Management options: What to do if the VIA test is positive?

- Offer to treat immediately.
- Refer for confirmatory diagnosis or adjunctive test.
Test performance: Sensitivity and specificity

- **Sensitivity**: The proportion of all those with disease that the test correctly identifies as positive.

- **Specificity**: The proportion of all those without disease (normal) that the test correctly identifies as negative.
**VIA test performance (n=7):**

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>65%</td>
<td>64%</td>
</tr>
<tr>
<td>Maximum</td>
<td>96%</td>
<td>98%</td>
</tr>
<tr>
<td>Median*</td>
<td>84%</td>
<td>82%</td>
</tr>
<tr>
<td>Mean*</td>
<td>81%</td>
<td>83%</td>
</tr>
</tbody>
</table>

* *Weighted median and mean based on study sample size*

Source: Adapted from Gaffikin, 2003
Strengths of VIA:

- Simple, easy-to-learn approach that is minimally reliant upon infrastructure.
- Low start-up and sustaining costs.
- Many types of health care providers can perform the procedure.
- Test results are available immediately.
- Requires only one visit.
- May be possible to integrate VIA screening into primary health care services.
Limitations of VIA:

- Moderate specificity results in resources being spent on unnecessary treatment of women who are free of precancerous lesions in a single-visit approach.
- No conclusive evidence regarding the health or cost implications of over-treatment, particularly in areas with high HIV prevalence.
- There is a need for developing standard training methods and quality assurance measures.
- Likely to be less accurate among post-menopausal women.
- Rater dependent.
Conclusions:

- VIA is a promising new approach.
- Ongoing VIA-based projects by ACCP partners in a number of countries are investigating long-term effectiveness of the VIA test-and-treat approach.

Several questions remain, including:
- Which factors maximize VIA’s performance?
- How can quality of VIA services outside of a controlled setting be ensured?
- How can VIA best be incorporated into prevention programs?
- What is the long-term impact on cancer mortality from programs incorporating VIA?
References:


For more information on cervical cancer prevention:

- The Alliance for Cervical Cancer Prevention (ACCP) www.alliance-cxca.org
- ACCP partner organizations:
  - EngenderHealth www.engenderhealth.org
  - International Agency for Research on Cancer (IARC) www.iarc.fr
  - JHPIEGO www.jhpiego.org
  - Pan American Health Organization (PAHO) www.paho.org
  - Program for Appropriate Technology in Health (PATH) www.path.org