

## CERVICAL CANCER SCREENING METHODS

\*Bhavya S. V. and Ambika K.

Assistant Professor, JSS College of Nursing, Mysuru.

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\*Corresponding author: Bhavya S. V.

Assistant Professor, JSS College of Nursing, Mysuru.

### INTRODUCTION

Cervical Cancer is the second most common cancer among women in developing countries world wide. It causes 12% of all cancers in women. About half a million new cases each year and more than one fourth million deaths each year occur due to cervical cancer, the condition of cervical cancer can be preventable and curable.

More than 80% of cervical cancers are in developing countries. Most cases found in women never screened or not screened for more than 5 years even more never in lifetime. High rates in the developing world directly related to the lack of screening programs. Introduction of screening programs in the USA and other countries has decreased the incidence of invasive disease.

### Characteristics of cervical cancer

- **Long time period of pre-invasive state**

May take 10 years or more to progress

Begins as mild dysplasia

Many regress spontaneously (atleast 50%)

- **Most are squamous cell types (80%)**

Local spread

Lymphatic spread

### Risk factors for Cervical Cancer

Multiparity

Early Childbearing

Multiple and high risk sexual partners

Sexually Transmitted infections

HPV infection

Low Socioeconomic status

Previous dysplasia

Immunosuppression, HIV and other conditions

### Rational for cervical cancer screening

- To detect pre-invasive disease

- Cervical cancer has long pre-invasive state allowing detection in the pre-malignant state.

- Can potentially prevent progression to invasive cancer.

Note: If a women were screened for cervical cancer only once in her lifetime, her risk of cancer could be reduced by 25-36%.

### Objective

To find screening test that will differentiate between a healthy and a diseased cervix.

Pap testing has been the standard worldwide.

Visual Inspection of Acetic acid has been compared favorably with cytology in several studies done in China, India and Africa.

### How to evaluate a screening test

**Sensitivity:** Proportion of truly diseased persons correctly identified as not having the disease.

**Specificity:** Proportion of non-diseased persons correctly identified as not having the disease.

**Positive predictive value:** Proportion of people with a positive test who have the disease.

### Pap Screening Limitations

Relatively poor sensitivity (51-66%)

Imperfect collection methods

Imperfect transfer of cells to slide or bottle

Lesions may not exfoliate

Cytologist error.

### Pap Screening

#### Problematic in low resource areas

- Lack of organized screening and follow-up programs
- Lack of technology and availability
- Lack of resources for reading cytology
- Lack of colposcopy resources for abnormal paps
- Lack of follow-up procedures

## Colposcopy

### Benefits

- Can be used as a diagnostic test when findings are confirmed by a biopsy of abnormal tissues.
- Permanent record possible with drawing of the findings or a photo.

### Limitations

- Depends on a expensive, fragile piece of equipment requiring maintenance, spare parts and repair services.

Requires electrical power, special training, instruments and pathology services.

Not always possible to see entire SCJ and TZ making examination unsatisfactory and necessitating endocervical curettage.

Reliance on biopsy requires a return visit.

### Alternative strategies for detecting cervical cancer

- Simple visual inspection
- Visual Inspection

With acetic acid (VIA)

With Lugol's solution (VILI)

Cervicography

Speculoscopy- VIA with chemiluminescent light source  
HPV DNA testing

### Visual Inspection with Acetic acid (VIA)

Unmagnified visualization of cervix after application of 5% acetic acid

Acetic acid application has a long history of use during colposcopy to locate abnormal areas.

Aceto white changes after application may indicate,

- Abnormal transformation zone
- Areas of increased cellular density with increased abnormal nuclei and DNA content

### Transformation zone

The area of the cervix between the original and the new squamocolumnar junction, where the columnar epithelium has been replaced or is being replaced by the metaplastic squamous epithelium

With the naked eye, one can identify the inner border of the transformation zone by tracing the squamocolumnar junction(SCJ) and the outer border by locating the distal most nabothian cysts (if present) or crypt openings.

### Visualisation of the cervix with acetic acid (VIA)

#### When to perform?

- Anytime during the menstrual cycle including during menses (provided flow is not too heavy)
- During pregnancy, at a postpartum examination
- For STI screening
- Intended for ages 20 to 50 years

## Categories for VIA test results

### VIA Category

1. **Test- Negative:** No acetowhite lesions or faint acetowhite lesions; polyp, cervicitis, inflammation, Nabothian cysts.
2. **Test- Positive:** 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.
3. **Suspicious for cancer:** Clinically visible ulcerative, cauliflower-like growth or ulcer; oozing and/or bleeding on touch.

### Visual Inspection with Lugol's Iodine (VILI)

It is also known as Schiller's test

### Limitations

- Lugol's solution stains underwear and other objects but is washable
- Requires training to inspect and assess
- Promising alternative to pap smear but like VIA, is still undergoing evaluation
- Lugol's iodine is more expensive than acetic acid, but less is needed for the test.

### Reasons for late diagnosis

- Lack of knowledge by the population about the symptoms
- A fatalistic attitude towards cancer and unawareness about the possibility of cure
- Lack of knowledge by the medical and paramedical staff
- Lack of disorganized screening programs
- Lack of equipped health care facilities

## CONCLUSION

The current concept of cervical cancer screening depends on the resources available, and adopted accordingly. High risk dysplasia cases whose immediate treatment will check the progression of the lesion to carcinoma. This will obviate the burden of follow up of all mild dysplasia cases which is a tedious problem and the selective follow up of high risk cases will definitely bring down the incidence of carcinoma cervix and associated mortality in the rural population.

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