Cervical cancer screening

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The cervix is the commonest site for female genital cancer. Statistics vary considerably from country to country and from race to race. Women living in poor conditions, the incidence as well as relative mortality rate of carcinoma of cervix is higher than the developed countries. The incidence rates, provided by the Population Based Cancer Registries (PBCRs) of India, have shown that the Age Standardized incidence rate (AAR) is highest (25.4 per 100,000) in Aizwal district of Mizoram state followed by Imphal West district (20.5) of Manipur and Kamrup Urban district (17.3) of Assam [1]. As there is no effective prevention programme in the northeastern part of India, therefore the risk of disease and the death from cervical cancer remains largely uncontrolled.

Epidemiologic studies demonstrate that the major risk factor for development of carcinoma of the cervix is human papilloma virus (HPV) infection [2, 3]. Other risk factors for cervical cancer include the following: a) High parity, b) Increased number of sexual partners, c) Young age at time of first sexual intercourse, d) Low socioeconomic status, e) History of smoking, f) Long-term use of oral contraceptives [4]. In spite of all these known epidemiological factors about cervical cancer, it is unfortunate that the disease is not diagnosed in its early stages in most developing countries.

Data from many countries have shown that screening reduces the incidence and mortality from cervical cancer. The cervical screening test is not a cancer test. The test is used to detect early abnormalities of the cervix which, if untreated, can lead to cervical cancer in future. Cervical cytology (Pap smear) has been the mainstay of cervical cancer screening tests since its introduction. However, molecular techniques for identification of HPV DNA are highly sensitive and specific. Current screening options include the following: i) Cytology alone, ii) Cytology and HPV testing, iii) Colposcopy.

Cytology: cervical smears

Cells exfoliated from the cervix can be cytologically examined and act as a good screening test. This test aims to detect potentially pre-cancerous changes (called cervical intraepithelial neoplasia (CIN) or cervical dysplasia; the squamous intraepithelial lesion system (SIL) is also used to describe abnormalities), which are caused by sexually transmitted human papillomaviruses. The test remains an effective, widely used method for early detection of pre-cancer and cervical cancer.

Cytology and HPV testing

A new approach to cervical cancer screening has emerged to further reduce the incidence of cervical cancer: co-testing with Pap cytology and HPV testing for women 30-65 years of age. Pap cytology alone has a low degree of sensitivity with a single cycle of screening [5, 6]. While sensitivity increases over several cycles, during that time, undetected disease may be progressing. A single round of HPV testing has been shown to have a sensitivity of about 90% for cervical cancer and its precursor lesions [6], establishing Pap cytology together with HPV testing as superior over cytology alone in detecting precancer and cancer of the cervix.

Colposcopy

This is extremely useful in locating the site of biopsy. Current practice is to reserve colposcopy in the evaluation of abnormal smear, clinically suspicious looking cervix on speculum examination and to high risk individuals.

Testing in resource poor areas

Though the cytology based screening is effective but it is beyond the capacity of health services in most of the part of India. The interpretation of cytology is difficult as the cytologist is not easily available in periphery. Moreover the patient needs to come to collect report which may lead to loss of patient for follow up. Hence, other methods of early detection of cervical neoplasm, particularly those based on visual inspection are being investigated which consist of "downstaging of cancer of the cervix, visual inspection with acetic acid (VIA) and visual inspection with lugol's iodine (VILI)".

a) Downstaging: According to WHO, it is defined as "the detection of the disease in an earlier stage by nurses and other paramedical workers using a simple speculum for visual inspection of the cervix". This method is useful when the other methods (Cytology, HPV testing, colposcopy) are not available. This method of screening is not expected to decrease the incidence of cervical cancer, but it will decrease the mortality through early detection.

b) VIA and VILI: VIA is based on the ability of the trained health care personnel to detect aceto-white in the cervical transformation zone on applying 4% acetic acid. VILI is detection of definite yellow iodine non uptake areas with lugol's iodine in the transformation zone or close to touching the squamocolumnar junction. The positive cases in both procedures are sent for biopsies and histological evaluation in higher centre where these facilities are available. As a screening test, VIA may perform as well as or better than cervical cytology in accurately identifying pre-cancerous lesions [7].

Screening Guidelines [8]

Cervical cancer screening guidelines newly released in 2012 by the United States Preventive Services Task Force (USPSTF) and the American Cancer Society (ACS). In these guidelines recommend testing every three years for women ages 21-65; routine cervical cancer screening for women under 21 and over 65 is no longer recommended. The two groups also introduced the option of a lengthened, five-year screening interval for women ages 30-65 when screened with a combination of Pap testing and human papilloma virus (HPV) testing.

The USPSTF recommends against screening for cervical cancer with HPV testing, alone or in combination with cytology, in women younger than age 30 years and also screening for cervical cancer in women younger than age 21 years.

The USPSTF recommends against screening for cervical cancer in women older than age 65 years who have had adequate prior screening and are not otherwise at high risk for cervical cancer.

Women who have had their uterus and cervix removed in a hysterectomy and have no history of cervical cancer or pre-cancer should not be screened. Women who have had the HPV vaccine should still follow the screening recommendations for their age group. Women who are at high risk for cervical cancer may need to be screened more often. Women at high risk might include those with HIV infection, organ transplant, or exposure to the drug diethylstilbestrol (DES).

Conclusion

Cervical cancer is the easiest gynecologic cancer to prevent, with regular screening tests and follow-up. Screening is recommended in women of >21yrs and it should stop at 65 yrs and after hysterectomy. The biggest gain in reducing cervical cancer incidence and mortality would be achieved by increasing screening rates among women rarely or never screened before. Clinicians, hospitals, health planners, and public health officials should identify and screen these women.

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