The Journal of
OBSTETRICS AND GYNECOLOGY of India

J Obstet Gynecol India Vol. 60, No. 2 : May / June 2010 Pg 205-206

Editorial

Down staging cervical cancer in resource poor settings

Worldwide, cervical cancer is the second most common cancer among women with an estimated 493,000 new cases occurring annually and 274,000 deaths occurring each year. [1] After introduction of the Pap smear cytology by Dr. George Papanicolaou in 1940, today it is widely accepted as the most effective cancer screening test for cervical cancer. Well organized and well implemented cytology based screening programs have drastically reduced the incidence and mortality due to cancer cervix in the developed countries. Based on experience of the countries with mass screening programs, International Agency of Research on Cancer (IARC) reported 93% reduction in cervical cancer incidence when women aged 35 to 64 years were screened at 1 to 3 yearly, 84% reduction when screened 5 yearly and 64% reduction when screened 10 yearly.[2] India still remains far from making Cytology available to the masses due to non availalbility of technicians to read smears.

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Due to lack of infrastructure and trained personal, the incidence of cervical cancer has remained as high as 80% in developing countries. [1] According to the Program for Appropriate Technology in Health (PATH), an international non-governmental organization, "An important reason for the high incidence in developing countries is the lack of effective screening programs to detect precancerous conditions and treat them before they progress to cancer".

According to the Indian Council of Medical Research (ICMR), the incidence of cervical cancer in India varies from 20 to 35 / 100,000 women between the age group of 35 years to 64 years while in developed countries it is as low as 1-8 / 100,000 women. In India, 132,000 new cases are reported annually with 74,000 deaths occurring each year hence, every 7th minute a woman dies due to cervical cancer. It is predicted that figures are expected to double by 2020 if no action is taken. [1]

The challenges and failure in implementing cervical cytology screening in resources poor settings has resulted into exploring alternative methods for down staging of the cervical cancer during last decade. Some of these methods are 1) Visual Inspection of Cervix with Acetic Acid (VIA), Visual Inspection of Cervix with Lugol's Iodine (VILI) 2) Use of Magnascope instead of Colposcope 3) Single visit approach 4) Treatment with cryosurgery for VIA +ve women 5) Self collected samples for cytology and Human Papilloma Virus (HPV)-DNA testing 6) Education and counseling 7) Increasing coverage by camp approach 8) Low cost HPV tests 9) HPV vaccines. [3]

In 1982, Ottaviano and La Torre reported that when women were examined visually by simple speculum and colposcopically after application of 3% acetic acid to cervix, they observed equal detection rates of cervical abnormalities by both techniques. [4] This led to the development of low technology screening test for down staging of cervical cancer in resources poor settings. After applying 3% acetic acid to cervix "white patches" appear due to coagulation of cellular proteins and indicate the abnormal epithelium which is thick and does not allow the light reflection to pass through (VIA). When Lugol's Iodine is applied to the cervix, the normal cells containing glycogen stain dark brown. The abnormal cells are rapidly dividing and are deficient in glycogen hence, remain unstained which are further evaluated (VILI). IARC studies in India and Africa proved that VIA performed by trained paramedics has sensitivity of 64 to 90% and specificity of 73 to 91% which is comparable to conventional cytology. [5] In 2007, Muwonge R et al reported that the specificity of VIA was increased by adding adjunctive test like VILI. [6] Advantages of visual technique are immediate results, making cost effective and has more than 99% negative predictive value.

Ten to fifteen percent VIA +ve women require referral to District hospital and are subjected for colposcopy and if necessary colposcopic guided biopsies. Generally inflammatory lesions and low grade squamous intraepithelial lesions(LGSIL) are treated conservatively and followed up subsequently. High grade lesions & cancer require specialized treatment.

In single visit approach cryotherapy is offered to all those women who are VIA +ve and cannot visit more than once for this test. Randomized trial conducted in Tamil Nadu for the single visit approach reported that follow up after 7 years showed a significant 25% reduction cervical cancer incidence, a significant 35% reduction in cervical cancer mortality and a 27% reduction in the incidence of Stage II or advanced cancer compared to control group. [7]

Educating women for utilizing the health camp system after completing family especially in rural areas and nationwide educational programs for women regarding awareness, prevention and early warning symptoms of cervical cancer can result into marked reduction in mortality. Similarly, camp approach and self sampling in rural areas can also down stage the disease in resource poor settings.

It is now well understood that persistent infection with at least one of the 15 cancer related, high risk human papillomavirus (HPV) causes the development of cervical cancer (70%due to type 16 and 18). In 2004, IARC reported that there is sufficient evidence to support the use of Hybrid Capture 2 (HC2) HPV-DNA testing as primary screening. HPV testing is an objective test which identifies both women with precursor lesions and women with high risk for cervical cancer in future. In 2006, Cuzick J. et al, published report on meta analysis of HPV tests in different settings showed sensitivity to detect cervical intraepithelial neoplasm (CIN) II & CIN III was 96.1% which was higher compared to cytology. [8] However, HPV test is less specific compared to cytology but specificity increases in women over the age of 35 years. The major advantages of using the test for primary screening is its very high negative predictive value resulting into minimal risk for developing cervical cancer within the next 10 years and hence, the inter-screening period can be extended, making a better use in the resources poor settings. The new rapid, affordable HPV test – Care HPV test is appropriate for resources poor settings. A clinical study in China amongst 2500 women reported that Care HPV test is comparable to HC2 and better than VIA. The sensitivity and specificity of the Care HPV for CIN 2+ was 90% and 84% respectively compared to 97% and 86% for HC2(9).

Conclusion :

VIA and VILI are useful screening alternatives to cytology in resource poor settings. Under The National Cancer Control Program, Govt. of India is recommended to provide VIA based screening at the primary health centers by trained health care providers and then a single visit approach for colposcopy and management at district hospital. Low cost, rapid HPV DNA test, self collection of smears with cytopathologist to read the smears, correction of co-factors like multipara, tobacco use, genital tract infections, low socioeconomic status and use of HPV vaccines will definitely prevent and down stage the cervical cancer in resource poor settings in near future.

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