

Cervical Cancer Prevention: Current Scenario

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Gynaecological malignancies are one of the leading cause of cancer related morbidity and mortality in women. After working many years in the field of gynecology oncology and related research work, I am keen to share my experience and knowledge with all. In developing country like India, cervical cancer was leading cause of morbidity and mortality amongst women with gynecological cancer, however now because of improving awareness about risk factors, prevention of HPV infection via vaccine, screening tests, advancement in early diagnosis and treatment, the burden has fallen compared to previous years although it still remains major matter of concern. In US and countries where PAP smear screening and treatment of cervical dysplasia are widely implemented, ovarian cancer is responsible for more cancer deaths each year than cancer of uterine corpus and cervix combined. Cervical cancer being one of the important cause of death amongst gynaecological malignancy across world but important thing is it is potentially preventable [1]. The cancer itself has been graded into stages so if we diagnose it at earlier stage the curability and 5 year survival rate is better with advancement in treatment modalities such as innovation in Radiation Oncology and Chemotherapy.

Global scenario

From WHO mortality database, 5.7 lakh cases of cervical cancer and 3.11 lakhs death occurred in 2018 [2]. Cervical cancer was fourth most common cancer in women globally and leading cause of cancer related death in women in Africa. China and India together contributed to more than a third global burden.

Primary prevention

The knowledge that persistent infection with carcinogenic human papillomavirus (HPV) types is the main cause in triggering the development of cervical cancer has opened new pathways for primary prevention by vaccines (Gardasil- quadrivalent, Gardasil 9- nine valent [type 16, 18, 6, 11, 31, 33, 45, 52 and 58] and Cervarix- bivalent) [3].

Secondary prevention

Includes screening tests by cytology with pap smear and liquid based, VIA (visual inspection after acetic acid application), HPV detection tests, colposcopy and treatment of precancerous lesions. By detecting precancerous lesions through screening and then effectively treating them with ablative or excisional methods, development of invasive cervical cancer can be prevented [4]. The cornerstone of screening programs in high-resource settings has been cervical cytology (Pap smears)but it has low sensitivity, women need to undergo repeat cytology on a regular basis to ensure precancerous lesions are detected, cytology programs require substantial infrastructure, highly-qualified human resources, and a well-defined quality control system, which have proved to be costly and difficult to implement for most LMICs.

Self-collection of specimen

Unfortunately, in many jurisdictions, even with longstanding screening programs, coverage rates remain very low. Self-collection has already proved to have substantial acceptability for women

across a variety of jurisdictions and has demonstrated impressive diagnostic accuracy compared with clinician-collected specimens [5]. It offers an opportunity to engage women, as it can be offered in a variety of settings, including at home, community centers, places of gathering, and clinical sites. It also means that practitioners do not need to conduct the first part of screening—collection of the specimen—and allows programs to focus scarce resources on follow-up of women who are HPV positive

Molecular diagnostic techniques for HPV detection and genotyping

Are better than cervical cytology in terms of sensitivity and reproducibility. It includes [6].

1. Target amplification: i) Polymerase Chain Reaction ii) Reverse Line Blot and Linear Array iii) Amplicor HPV iv) PapilloCheck v) Multiplex HPV Genotyping Kit vi) Real-Time PCR.
2. Signal amplification: i) Hybrid Capture Assay Care HPV ii) Cervista HPV HR iii) Cervista HPV 16/18
3. Probe amplification.

Video colposcope

The standard colposcope is binocular microscope which uses green filter and has magnification that may vary from 6X to 40X with lamps which can be halogen bulbs or LED. Digital Video Colposcope is variant of standard colposcope without binocular lens system, have powerful high definition camera and super bright LED. It provides high quality images which can be recorded and stored for further references. It displays the captured images on a viewing monitor and helps clinician diagnose pathological changes.

WHO has new guidelines to better prevent and control cervical cancer across countries? [7]

- As per the guidelines, girls between 9 to 13-year-old to be vaccinated with two doses of HPV vaccine to prevent Human papillomavirus (HPV) infection. As per guidelines 2 doses schedule is equally effective as current 3 doses schedule and it is not only easier to administer but also cost effective which makes it important for low- and middle-income countries as there will be no additional burden on national health budgets. More than 55 countries girls are protected today by routine administration of HPV vaccine.

- Screening with HPV tests will give additional benefit to prevent cervical cancer by reducing the frequency of screening. As per WHO if woman has HPV screen negative, she should not be rescreened for at least 5 years but within 10 years which reduces cost burden on health system.
- WHO also aims at communicating larger group of people which includes not only women over 29 years of age but also adolescents, parents, political leaders, public health system workers by involving schools and public places etc to create awareness and spread education.
- Inequalities due to geographical barriers to be addressed.
- It identifies opportunities and ages throughout woman's life when cervical cancer prevention can be put to action by
- **Primary prevention:** vaccinating 9 to 13 years old girls before they become sexually active.
- **Secondary prevention:** screening tests such as PAP smears, VIA (visual inspection of the cervix with acetic acid) or HPV tests, treatment of any detected precancerous lesions.
- **Tertiary prevention:** cancer treatment according to stages which include surgery, chemotherapy and radiotherapy.

In developing and low socioeconomic countries still patients come in advanced stages for which palliative care is still an option. In our study conducted on 60 women who required palliative treatment for various symptoms in which curative treatment was not available or proven ineffective, it was found that palliative treatment helped in improving quality of life and symptoms [1].

Conclusions

Globally PAP smear itself was useful in screening of cervical cancer but now video colposcope, HPV tests has definitely given helpful edge in screening. In developing countries still we get advanced stages of cervical cancer therefore there is huge need of preventing it by screening and routine administration of HPV vaccine covering wide population and by method which is equally beneficial and more cost effective.

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