



HPV Screening for Cervical Cancer in Rural India saves women's lives

Cervical cancer is a major global public health problem affecting socioeconomically deprived populations. It is the most common cancer among women in low-resource countries where 85% of the global cervical cancer burden of approximately 493 000 cases and 273 000 deaths are found annually. While HPV vaccines have been launched recently to prevent infection by the two major types of HPV causing cervical cancer, cervical cancer prevention will still need to rely on early detection of cervical cancer precursors by screening for several years before the full impact from affordable and efficient immunization programmes can be felt. "Cervical cancer deaths need to be prevented urgently in the developing world to reduce disparities and improve women's health" said Dr Christopher Wild, IARC Director. For several decades now, it has been known that the wide-spread use of Pap smear test for screening has successfully and substantially reduced cervical cancer deaths in developed countries. "However, Pap smear screening has not been uniformly successful in preventing cervical cancer deaths in many parts of the world, particularly in low- and medium-resource countries, due to several challenges in providing good quality testing and following up women testing positive", Dr Wild added.

Recognising the need for a more practical and effective approach to screening and early detection of cervical cancer in developing countries, Dr Rengaswamy Sankaranarayanan, Head of the [Screening Group](#) at IARC, with Dr Bhagwan Nene and colleagues from the Nargis Dutt Memorial Cancer Hospital (NDMCH), Barshi, India and Dr Surendra Shastri and colleagues from the [Tata Memorial Centre](#) (TMC), Mumbai, India undertook a large randomised controlled trial in the remote district of Osmanabad in Maharashtra State, India. 131 806 healthy women aged 30-59 were invited to take part in the study and 32,000 - 34,000 women were randomly allotted to receive either a single round of screening by HPV testing or visual inspection with 4% acetic acid (VIA) or Pap smear and compared cervical cancer cases and deaths with those of the 31,500 women allotted to the usual care and health education. Women found positive on any of the screening tests were investigated with colposcopy and biopsies and those with cervical pre-cancer and cancer received appropriate treatment.

In this perspective, "the joint effort by the IARC, NDMCH and TMC scientists assumes enormous public health importance in demonstrating the objectivity, utility and the comparative effectiveness of different screening approaches in cervical cancer prevention in low- and medium-resource countries" said Dr Rajan Badwe, Director of the TMC.

This is the largest randomised controlled trial of the three screening methods for cervical cancer in a low-resource setting, carried out in rural India from 2000 to the present. Dr Sankaranarayanan and colleagues found that HPV testing was more objective and prevented more advanced cervical cancers and cancer deaths, compared with an unscreened group of women, than the Pap test or visual screening. Fewer subsequent cancers were diagnosed among the HPV test negative women than among Pap or visual screen negative women. "The significant reduction in advanced cancers and cervical cancer deaths following a single HPV testing is due to the possibility that HPV screening detected more precancerous lesions with a high potential of becoming cancer than those detected by visual screening or Pap smear" said Dr Sankaranarayanan.

"These results emanate from a rigorous study, designed to provide strong scientific evidence, and have benefitted from substantial community level cooperation, ethical committees inputs and a systematic registration of cervical cancer cases in the Osmanabad district" said Dr B. Nene, Director of the NDMCH.

Complete data were available for 131,746 women for whom cervical cancer incidence and mortality were analysed. The results showed 127 cervical cancer cases, 39 advanced cancers and 34 cervical cancer deaths in the HPV screened group; 152 cervical cancer cases, 58 advanced cancers, and 54 deaths in the Pap smear group; 157 cervical cancer cases, 86 advanced cancers and 56 deaths in the visual screening group compared with 118 cervical cancers, 82 advanced cancers and 64 deaths in the unscreened control group of women. These results show no significant reduction in advanced cancers or cervical cancer deaths following VIA or cytology screening, while a significant reduction in advanced cervical cancers and deaths followed a single round of HPV testing in this low-resource setting. "The study shows a number of important findings with wide-ranging implications for all countries in the world, including developed countries" said Dr Wild.

The parallel development of fast, accurate and affordable HPV tests, suitable for use in developing countries, makes HPV testing a feasible screening approach in low-resource settings and should go hand in hand with further developments in affordable and effective vaccines to prevent infection by the two major types of HPV responsible for cervical cancer development. "Although HPV testing will avoid the variation and subjectivity in test interpretation and minimize efforts required in quality assurance, high participation for screening and treatment of precancers and cancers are critical to successful screening programmes leading to reduce disease burden in all settings" added Dr Surendra Shastri, head of preventive oncology at the TMC.

Recommendations

It is of the utmost importance to set up organized screening programs in low-resource populations to reduce the current high burden of cervical cancer in the near future, parallel to immunization programs when affordable HPV vaccination is available. For HPV screening to be feasible, low cost, HPV testing should be made available as rapidly as possible.

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