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Cervical Cancer

Prevention of Cervical Cancer through HPV Vaccination and Screening in Maldives

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Introduction

Prevalence of human papilloma virus (HPV 16/18) among women with cervical cancer is high (68%) as well as among those with high-grade cervical lesions (HSIL/CIN-2/CIN-3/CIS) (42%). HPV vaccination has been introduced as national program since 2019. Coverage of two doses of vaccination in 2019 and 2020 was estimated at 88 and 70%, respectively. With both national cervical cancer screening program and HPV vaccination program, the expected incidence and mortality attributable to cervical cancer should see further decrease over the coming years depending on optimum implementation of these programs and more public health awareness about the magnitude of disease among population of Maldives.

Cervical Cancer in Maldives: The Magnitude

Maldives is one of the world's most geographically dispersed sovereign states and the smallest Asian country with around 5,57,751 inhabitants.[1] As per Globocan 2020, cancer of the cervix uteri with an estimated 604,127 new cases and 341,831 deaths is the fourth most common cancer among women worldwide. Mortality rates of cervical cancer vary widely from 1.6/100,000 in West Asia to 28.6/100,000 in East Africa. With 88% of global burden attributed to low-middle income countries (LMICs) as per Globocan 2020, carcinoma of cervix is predominantly the disease of LMIC. The magnitude of cervical cancers in LMIC still remains high.[2] Persistent infection from oncogenic HPV infection is responsible for more than 90% of cervical cancers globally.[3]

Carcinoma cervix is the second most common cancer among the females in Maldives with about 46 new cervical cancer cases diagnosed annually in Maldives. Cervical cancer ranks as the second leading cause of female cancer deaths in Maldives with about 24 cervical cancer deaths reported annually. Cumulative risk of developing carcinoma cervix before 75 years is 2.82% for Maldives as compared to 1.72% for southern Asia and 1.39% for the world.[4] Prevalence of HPV 16/18 among women with cervical cancer is high (68%) as well as among those with high-grade cervical lesions (HSIL/CIN-2/CIN-3/CIS) (42%).[3]

Cervical Cancer Prevention: Global Goals and Measures

The elimination of cervical cancer can only be achieved through multidimensional efforts, as outlined in the 90-70-90 strategy set out by the World Health Organization (WHO). This strategy aims to eliminate cervical cancer by achieving an incidence rate of below 4 per 1,00,000 women in all countries. The three key pillars (and their corresponding targets goals needed to be achieved) are vaccination (90% of girls fully vaccinated with the HPV vaccine by the age of 15); screening (70% of women screened using a high-performance test by the age of 35, and again by the age of 45), and treatment (90% of women with precancer treated and 90% of women with invasive cancer managed). By 2030, each country should meet the 90-70-90 targets if they want to eliminate cervical cancer within the next century.[5] HPV

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vaccination and cervical cancer screening using a validated HPV detection test (with or without triaging with cytology or visual inspection by acetic acid [VIA]) are important strategies in achieving these goals.[6]

The incidence of cervical cancer in LMICs is expected to reduce from 19.8 to 2.1/1,00,000 women years by the next century, provided we carry out HPV vaccination of young girls with high coverage. This will prevent an estimated 61 million clinical cases over the same period—between 2059 and 2102. Further prevention of clinical cervical cancer in an extra 12.1 million women over the same period, is projected, provided two lifetime HPV screening can be carried out.

Cervical Cancer Screening in Maldives

In Maldives, the Ministry of Health and Gender commenced national cervical cancer screening program on January 19, 2014 with support from United Nations Population Fund (UNFPA, 2014).[7] It was noted that an organized screening program can significantly reduce cervical cancer incidence and deaths. The salient features of the program are as follows: (1) it aims to screen women in the age group of 30 to 50 years every 5 years; (2) VIA will be used as the primary screening test—with the nurses and health workers trained to do the test; (3) screen positive women to be referred for diagnostic test (colposcopy and biopsy) and treatment; (4) in absence of such diagnostic facilities, the VIA positive women will be assessed for cryotherapy at the same visit; (5) appropriate training of all levels of health care providers was planned to be arranged along with periodic refresher training.[7] The goal of the program was to ensure one round of screening of at least 80% of the target population within 5 years of implementation of the program through strengthening the capacity of health system to deliver standard screening, diagnosis, and treatment services for cervical precancer and cancer.

The screening coverage achieved in the target population in Maldives is unknown as there is no available published data. Basu et al conducted a knowledge, attitude, and practice study about cervical cancer and found out that there was high prevalence of risk factors for cervical cancer like early initiation of sexual activities (before 18 years age), early age of marriage, multiple marriages (one third), and second-hand smoking. The awareness about cervical cancer including screening and vaccination was very low irrespective of literacy status. Only 6.2% of women reported to have undergone at least one round of screening in their lifetime. It must be noted that the survey was conducted between August 2012 and July 2013.[8] Recent paper from Bruni et al reviewed the cervical cancer screening in 202 countries and proposed the incremental needs required to meet target of 70% screening coverage by 2030. The incremental factor for Maldives is 11.7 times, indicating that the minimum number of females in age group 35 and 49 years needed to be screened in coming 5 years is nearly 29,000 so as to achieve the target of 70%.[9]

HPV Vaccination in Maldives

In 2019, the global coverage of final HPV dose was estimated at 15%. Just over half (107/194;55%) of the WHO member states have introduced HPV vaccination till June 2020. Europe and North/south America are the WHO regions leading the way; 77 and 85% countries in these regions have already introduced HPV vaccination. In 2019, many LMICs commenced HPV vaccination. Interestingly, LMICs performed better for the first dose than high-income countries. Unfortunately, higher dropout results in poorer coverage for the last dose. Average performance coverage of programs globally was around 67% for the first dose and 53% for the final dose of HPV. Final dose of more than 90% was achieved by only five (6%) countries. Another 22 countries (21%) achieved a coverage of 75% or higher. Final dose coverage of 50% or less was found in 35 countries (40%).[10]

In Maldives, HPV vaccination was started at national level as National HPV Immunization program in 2019 for females of age 9 and 14 years. In the first year of immunization, HPV coverage for first dose was 88%. The very next year (2020) HPV coverage for two doses was 70%.[3] The goal of 90% HPV vaccination appears to be possible in Maldives, provided the momentum is maintained (by increasing the public awareness about cervical cancer and the prevention strategies and ensuring sustained funding for the program). Finally, the introduction of single-dose HPV vaccine, as per the latest guidance from the WHO, will prevent the challenge of high dropouts for the last dose and also save resources that Maldives may invest in scaling up HPV detection-based screening.[6]

Conclusion

Maldives has high incidence and mortality rates due to cervical cancer, which is the second most common cancer in females. Increase in cervical cancer awareness including prevention, screening, and treatment is of paramount importance. Rigorous implementation of cervical cancer screening by VIA should be strengthened with the addition of HPV-based screening into their national program. HPV vaccination coverage has been good till date and can be improved further with the availability of single-dose vaccination. The country needs to take a call to switch to a single dose of HPV vaccine in alignment with the latest WHO guidance. This will make cervical cancer elimination a reasonable possibility in the foreseeable future.

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Conflict of Interest
None declared.

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