EDITORIAL

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Cervical Cancer Screening in Women Vaccinated Against HPV: Is It Time to Change Strategies?

Tamizaje de cáncer de cuello uterino en mujeres vacunadas contra el VPH: ¿es momento de modificar las estrategias?

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It will become increasingly common in gynecological practice to care for women who have been vaccinated against HPV. At present, we do not have specific guidelines for cytologic screening and management of women vaccinated against HPV; however, the available information is growing and highlights the need for new guidelines in the near future for this population, whether for individual management or for a partially vaccinated population. HPV vaccines have been shown to prevent precancerous lesions in clinical trials. Furthermore, prevention of cervical cancer has been reported, as demonstrated in Sweden[1], where women aged 10 to 30 who received the tetravalent vaccine were evaluated; the prevention of "cervical cancer" was notable, being even greater at younger ages at vaccination, reaching a RR = 0.12 in those under 17 years of age. Vaccinated women have a lower risk of cervical cancer and likely should not follow the exact same screening schedules as unvaccinated women.

HPV vaccines began to be approved for use worldwide on a gradual basis starting in 2006; initially, the tetravalent vaccine was approved by the FDA on June 8, 2006—that is, 20 years ago. In Peru, the HPV vaccine was included in the national immunization program for the first time in 2011, with the bivalent vaccine administered in three doses, targeting girls aged 10 to 15. In the early years, these vaccines were administered in three-dose regimens in accordance with the results of the research protocols that led to their approval. Peru's national HPV vaccination program has progressively modified its guidelines as knowledge has advanced, gradually reducing the number of doses and adjusting the target population. In 2025, the single-dose nonavalent vaccine was introduced for both genders, for children aged 9 to 18 years[2].

In November 2020, the WHO proposed the 90-70-90 strategy to progressively reduce the incidence of cervical cancer to 4 per 100,000 women by 2030[3]. Each of these figures corresponds to primary, secondary, and tertiary prevention of cervical cancer, respectively. The first figure, 90%, refers to the goal of vaccinating girls against HPV before age 15; currently, a single dose is sufficient, rather than the three doses required initially, making it easier to achieve this goal among the target population[4]. HPV vaccine coverage in the United States reaches only 63% of adolescent girls, according to CDC data[5]. In 2023, MINSA reported 87% coverage of the "target" population—girls and boys aged 9 to 13[6].

Recently, a population-based mathematical model developed in Norway[7] has shown that women vaccinated before age 30 may require be-

tween 2 and 5 screening tests over the course of their lives, rather than 9 times as recommended in the American Cancer Society's (ACS) cervical cancer prevention guidelines and in most national vaccination programs[8]. Current guidelines do not yet differentiate between vaccinated women who have 90% protection against cervical cancer. This mathematical model takes into account the cost-benefit and risk-benefit ratios for referring positive cases that require colposcopy. Women vaccinated between the ages of 12 and 24 would require screening 2 or 4 times over the course of their lives, depending on the age at vaccination. Women aged 25 to 30 will require screening every 10 years, which amounts to 5 times over the course of their lives.

One very important point is that HPV-16 has been shown to have the highest oncogenic potential (Group 1a), followed by HPV-18 and 45 (Group 1b); third, HPV-31, 33, 35, 52, and 58 (Group 1c); and fourth, HPV-39, 51, 56, and 59 (Group 1d), with Groups 2–4 being of lesser importance[9, 10]. The available vaccines protect against HPV-16 and 18; even the bivalent vaccine provides cross-protection against HPV-45, 31, and 33. The nonavalent vaccine protects against all types in groups 1a, 1b, and 1c, except for HPV-35 in group 1c. However, the protection achieved—approximately 90% with the vaccines—is very good and will allow for changes to be considered in cervical cancer screening for vaccinated patients.

The Ministry of Health (MINSA) has incorporated HPV testing into the cervical cancer prevention and management program; however, coverage has not yet been sufficient in practice[11]. In the coming years, the gradual increase in cohorts vaccinated against HPV will necessitate a reevaluation of traditional cervical cancer screening strategies. The high level of protection provided by the vaccines, especially when administered before the onset of sexual activity, will likely allow for longer intervals between screenings, a reduction in the number of lifetime evaluations, and the prioritization of highly accurate molecular tests, complemented by emerging biomarkers such as dual staining (p-16/Ki-67) and methylation tests. In this new scenario, maintaining identical screening regimens for vaccinated and unvaccinated women could lead to overtreatment, increased costs, and overdiagnosis. The major challenge will be to develop differentiated guidelines based on individual risk, age at vaccination, and type of vaccine received; to this end, it will be essential to have reliable national HPV vaccination registries. The era of uniform screening for all women is likely coming to an end.

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