



Male Human Papilloma Virus Infections: How to Prepare for Vaccination Strategies

Jeonghyouk Choi, Koo Han Yoo

Department of Urology, School of Medicine, Kyung Hee University, Seoul, Korea

Human papillomavirus (HPV) infections are linked to benign and malignant urogenital conditions, with varying risks associated with different HPV genotypes. Genital warts, mainly caused by low-risk HPV types, have seen a recent surge in incidence, leading to escalating medical costs. While vaccines like Cervarix and Gardasil target females, the exclusion of Gardasil 9 raises questions about gender-neutral vaccination strategies. Studies highlight potential cost savings through male HPV vaccination but note the rising prices of HPV vaccines, particularly Gardasil 9. Recent findings underscore HPV's expansion into nasopharyngeal cancer, urging the introduction of male HPV vaccination programs. However, the increasing vaccine costs raise concerns about accessibility and affordability. Regulatory bodies and healthcare stakeholders must address these challenges to ensure equitable HPV prevention and control measures. Efforts to control vaccine pricing and promote comprehensive immunization strategies are crucial in mitigating the growing burden of HPV-related diseases.

Keywords: Human papillomavirus viruses; Vaccination; Immunization programs

Received: 7 March, 2024

Revised: 20 March, 2024

Accepted: 20 March, 2024

Copyright © 2024, Korean Association of Urogenital Tract Infection and Inflammation.



This is an open access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Correspondence to: Koo Han Yoo

<https://orcid.org/0000-0001-7952-7902>

Department of Urology, Kyung Hee University Hospital at Gangdong, Kyung Hee University College of Medicine, 892 Dongnam-ro, Gangdong-gu, Seoul 05278, Korea

Tel: +82-2-440-7736, Fax: +82-2-440-7744

E-mail: yookoohan@khu.ac.kr

The human papillomavirus (HPV) is one of the most common urogenital tract infections [1]. Some infections are associated with benign conditions, such as genital warts and laryngeal papillomatosis, while others are associated with malignancies, such as cervical, penile, oropharyngeal, anal, and vulvar cancers. A disease called genital warts occurs mainly in the low-risk group of HPV, represented by genotypes 6 and 11. Genotypes 16, 18, 31, 33, 35, 45, 51, 52, 56, 58, 59, and 68, which are high-risk groups for HPV, account for most of the causes of cervical cancer, anal cancer, vaginal cancer, vulvar cancer, and penile cancer [2].

Recently, the incidence of genital warts has been increasing. Kim et al. [3] reported the status of genital warts from 2010 to 2019. In 2010, 15,032 men and 10,176 women

were treated, but an increase of 229% and 56% to 49,283 men and 15,920 women, respectively, occurred in 2019. The increase in total medical expenses is also increasing rapidly. The total treatment costs increased 366% from US\$1,400,332 in 2010 to US\$6,519,017 in 2019.

Currently, Cervarix and Gardasil are the commercially available vaccines for women aged 12 years and older, but Gardasil 9 is excluded. In 2019, The Korea Centers for Disease Control and Prevention conducted a cost-effectiveness study on introducing a national immunization program for a male HPV vaccine. A study of 220,000 12-year-old girls showed that US\$12,640,000 in disease costs could be saved by administering a vaccine cost of US\$33,200,000. On the other hand, a study of 220,000 12-year-old boys concluded that the vaccine cost of US\$35,550,000 exceeded

the disease cost of US\$15,800,000.

Recently, the Korean Association of Urogenital Tract Infection and Inflammation announced that HPV disease is expanding to nasopharyngeal cancer in addition to cervical cancer. The main reason given was HPV infection in men and emphasized that HPV vaccine should be introduced in men. In addition, the Korean Society of Head and Neck Surgery emphasized the need for a male HPV vaccine as the number of oropharyngeal cancer patients has recently tripled.

In May 2023, the Korea Centers for Disease Control and Prevention announced it would conduct a cost-effectiveness study again. The cost of the disease is expected to increase input costs within four to five years due to the continuous increase in HPV infection, but one confounding variable has recently emerged. The price of Gardasil 9 has increased. MSD Korea plans to raise the prices of Gardasil and Gardasil 9 by 15 % and 17 %, respectively [4]. Compared to 2020, the price of Gardasil 9 increased by 25% in 2022. The Korean Society of Obstetrics and Gynecology is currently reviewing violations of the law for abuse of the monopolistic position of MSD. The Korean Urological Association and the Korean Society of Otorhinolaryngology-Head and Neck Surgery must also align with this trend.

In conclusion, the increasing prevalence of HPV will soon lead to the introduction of a vaccine for national immunization programs in men, but the price of Gardasil 9 appears to vary. Therefore, various related academic societies and institutions must exert pressure to limit the price of Gardasil 9.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article

was reported.

FUNDING

No funding to declare.

AUTHOR CONTRIBUTIONS

K.H.Y. participated in conception, writing, and editing.
J.C. participated in design.

ORCID

Jeonghyouk Choi, <https://orcid.org/0000-0003-0650-7569>

Koo Han Yoo, <https://orcid.org/0000-0001-7952-7902>

REFERENCES

1. Kombe Kombe AJ, Li B, Zahid A, Mengist HM, Bounda GA, Zhou Y, et al. Epidemiology and burden of human papillomavirus and related diseases, molecular pathogenesis, and vaccine evaluation. *Front Public Health* 2021;8:552028.
2. Li Y, Xu C. Human papillomavirus-related cancers. *Adv Exp Med Biol* 2017;1018:23-34.
3. Kim EJ, Lee JC, Lyu DH, Choi U, Choi JB, Kim KS, et al. Trends of genital wart in Korea according to treatment method classification: big data analysis of health care in 2010-2019. *Investig Clin Urol* 2023;64:56-65.
4. Kim Y. Petition filed against MSD's price hike on cervical cancer vaccine [Internet]. Seoul: Korea Biomedical Review; 2021 [cited 2024 Jan 19]. Available from: <https://www.koreabiomed.com/news/articleView.html?idxno=10885>