Clinical Medicine Insights: Case Reports

CASE REPORT

Incident HPV 51 Infection After Prophylactic Quadrivalent Human Papillomavirus (Types 6, 11, 16, and 18) L1 Virus-Like Particle Vaccine Gardasil/Silgard®

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Abstract: We report the case of a 19-year-old woman who received a complete vaccine program by Gardasil. After one year, Greiner HPV test revealed HPV51 positivity. This case report highlights the limits of the vaccine, and the need to have a clinical follow up of patients despite the vaccination program.

Keywords: HPV51 infection, HPV vaccine, cervical intraepithelial neoplasia

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Prophylactic vaccines targeting HPV6/11/16/18 and HPV16/18 infections have recently been shown to reduce the incidence of cervical intraepithelial neoplasia (CIN) due to these types.[1,2] Because of its expected public health benefit on reduction of cervical cancer and other HPV-related diseases, this vaccine has been rapidly implemented in the routine vaccination programs of several countries. It is therefore essential to assess its impact and safety through post-licensure surveillance programs.[3] Few data are available on the efficacy of Gardasil and Cervarix on non-HPV16 and non-HPV18 high-risk types.[4] Baseline prevalence of HPV infection as well as the distribution of the different HPV types in the population and among women with cervical lesions indicated that the five most prevalent HPV types without cytologic abnormalities were HPV16 (2.3%), HPV31 (2.1%), HPV51 (1.6%), HPV53 (1.5%), and HPV59 (1.4%), whereas in high-grade squamous intraepithelial lesion (HSIL), the most prevalent types were HPV16 (34.9%), HPV31 (23.9%), HPV39/HPV52 (both 12.8%), and HPV51 (11.9%).[5]

HPV51 is considered a high-risk HPV with a low prevalence (0%–2.3%) in CIN depending on the countries.[6] Yet few data are available on the efficacy of Gardasil and Cervarix on this HPV 51 type; these two HPV commercially available vaccines probably do not protect against HPV51.

We report the case of a 19-year-old woman who received a complete vaccine program by Gardasil (HPV6/11/16/18 vaccine; Gardasil or Silgard; Merck and Co, Inc, Whitehouse Station, NJ) one year ago and was referred to her gynecologist for a routine pap smear. The pap smear revealed atypical cells of undetermined significance (ASCUS), and a HPV high-risk detection test was found positive with high-risk HPV51 (found twice at one month interval to avoid any sample mistake) using the Greiner HPV test and a GP5+GP6+ modified typing methodology.[7] This patient had no specific medical history, and no other sexually transmitted diseases, and she had two sexual partners during the year after the last injection of vaccine. The HBV status of this woman was the following: HBs antibody titer, 5000 UI/L (consecutively to HBS vaccination as recommended by the French authorities), and the HBs antigen and HBc antibody were negative.

Guidelines for HPV vaccine do not recommend any HPV screening before vaccination. Indeed, due to the possibility that this woman already had HPV51 at baseline, we cannot definitively establish whether this case is an incident case or a prevalent case.

It was reported that vaccination reduced the rate of HPV31/33/45/52/58 infection by 17.7% and of CIN1-3 or adenocarcinoma in situ (AIS) by 18.8%.[8] Vaccination also reduced the rate of HPV31/58/59-related CIN1-3/AIS by 26.0%, 28.1%, and 37.6%, respectively.[9] A slight reduction in HPV31/33/45/52/58-related CIN2 was observed, but it was not statistically significant. This case report highlights the limits of the vaccine, specifically on non-HPV16 and non-HPV18, and the need to have a clinical follow up of patients despite the vaccination program. Also, determining the population-based impact of HPV vaccines will require longer-term surveillance, beyond the vaccine clinical trial. The clinical benefit of cross-protection is not expected to be fully additive to the efficacy already observed against HPV6/11/16/18-related disease. New vaccines are needed to address the problem of non-HPV16 and non-HPV18 high-risk types for which Gardasil has no protective effect.

Authors Contributions

PH, GP: wrote the manuscript. PH, SR, HK, CL: participated in the case analysis.

Disclosure

This manuscript has been read and approved by all authors. This paper is unique and is not under consideration by any other publication and has not been published elsewhere. The authors and peer reviewers of this paper report no conflicts of interest. The authors confirm that they have permission to reproduce any copyrighted material. Written consent was obtained from the patient or relative for publication of this study.

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