Immunogenicity of single-dose hepatitis A vaccines in young adults

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Background: In many countries, hepatitis A virus (HAV) infection has become an important public health issue with improvement in socioeconomic status. In Korea, a HAV vaccination program for young adults has recently been under consideration because of the low seroprotection rate in this age group.

To ensure long-term immunity, the vaccine manufacturers recommend 2 doses of the vaccine, but in some countries, a single-dose HAV vaccine is used for infants. The immunogenicity of the single-dose HAV vaccine is a key factor for deciding the vaccination schedule, but only a few studies have evaluated this immunogenicity in adults.

This study was performed to examine the immunogenicity of the single-dose HAV vaccine in young adults.

Methods: The study population comprised a total of 582 college students from 8 medical schools in Korea. Total 451 participants who had negative results for anti-HAV antibody (cut-off value: 20 mIU/ml) and met the inclusion criteria were randomly allocated into 2 groups for receiving either of the 2 vaccines: Havrix (n = 225) and Epaxal (n = 226) groups. We checked the seroconversion rate at 7–12 months after vaccination.

Results: The seroconversion rate in Havrix group (84.9%) was significantly higher than that in Epaxal group (76.5%; P = 0.031), and the male participants (75.3%) showed significantly lower seroconversion rates than the female participants (91.4%; P < 0.001). In the logistic regression model, only gender was a statistically significant factor affecting seroconversion rates (OR= 2.7, P = 0.016) and vaccine type showed borderline significance (OR = 1.6, P = 0.051). The other covariates (follow-up time, age, and body weight) were not significant. In the logistic regression model analysis according to the vaccine type, gender showed a significant effect only in the Epaxal group (OR = 5.0, P = 0.011).

Conclusion: After single-dose vaccination, the HavrixTM and Epaxal® vaccines showed immunogenicity of more than 75.0% at 7–12 months after the vaccination, and the male participants showed lower seroconversion rates than the female participants, particularly in the Epaxal group. The seroconversion rate after the second dose and the long-term immunogenicity will be compared for the 2 vaccine types in future studies.