

P0871

Paper Poster Session

News in vaccine research

Immunization with recombinant hepatitis B vaccine in Japanese

Akira Ukimura*¹, Yuriko Shibata¹, Tomoyuki Yamada¹, Fumio Goto¹, Yukimasa Ooi¹, Takashi Nakano¹

¹Osaka Medical College, Infection Control Center, Takatsuki, Japan

Background: Healthcare workers (HCW) are at a high risk of acquiring hepatitis B virus (HBV) infection through occupational exposure to blood or body fluids. The Japanese Society for Infection Prevention and Control renewed the vaccination guidelines for HCW in 2014, however, the efficacy of these new guidelines remains unknown. The summary basis of approval for a recombinant HBV vaccine (Heptabax®) in Japanese showed that 95.0% (662/697) and 90.2% (776/860) of Japanese HCW had an anti-HBs titer of >10 mU/ml after intramuscular and intradermal vaccination, respectively. Universal vaccination of infants and children is not performed in Japan.

Materials/methods: This retrospective observational study aimed to analyze the risk factors for failure to develop adequate levels of antibodies (anti-HBs titer >10 mU/ml) in Japanese HCWs. A total of 2,394 HCWs and medical students of Osaka Medical College were enrolled in this study and underwent a primary vaccination course (10 µg of recombinant HB vaccine injected at 0, 1, and 6 months). 1,225 individuals were injected intramuscularly, and 1,169 individuals were injected subcutaneously. A second vaccination course was recommended to non-responders, who had an anti-HBs titer <10 mU/ml.

Results: There was no significant difference in response rate between the intramuscular vaccination (91.8%; 1,124/1,225) and intradermal vaccination (91.8%; 1,074/1,169) groups. The response rate to the primary vaccination course was 96.3% (660/685) among teens, 92.0% (1248/1356) among those in their twenties, 87% (134/154) among those in their thirties, and 83.8% (155/185) among those over 40 years of age. There was a significant difference ($p < 0.05$) in response rate between those in their teens, twenties and thirties. There was a significant difference ($p < 0.05$) in response rate between those in teens and over forty, and between those in twenties and over forty. There was no significant difference in response rate between those in thirties and over forty. The overall response rate to the second vaccination course was 87.3% (83/95). The response rate for those with a low titer (>1 mU/ml) before the second vaccination course was 100% (32/32), and the response rate for those with a very low titer (<1 mU/ml) before the second vaccination course was 89.5% (51/57). The response rate for those with a titer of 0 mU/ml before the second vaccination course was 80% (12/15), which was significantly lower than the response rate for those who had a low titer (>1 mU/ml).

Conclusions: There was no significant difference between the response rates to the intramuscular and subcutaneous vaccinations, and aging was a risk factor for non-response in Japanese. An anti-HBs titer of 0 mU/ml after a primary vaccination course may be a risk factor for non-response to a second vaccination course.