Abstract

Background To evaluate the long-term immunogenicity of hepatitis B virus (HBV) vaccine, we studied the duration of surface antibody (anti-HBs) persistence and the incidence of HBV infection on a large-scale community-based population in Taiwan.

Methods We followed 1200 healthy 7-year-old children in Taipei city with a complete HBV immunization in infancy. HBV surface antigen (HBsAg), anti-HBs, HBV core antibody (anti-HBc) were determined annually for 6 consecutive years. A booster vaccination was administered in 200 noncarrier children without protective anti-HBs titers at the age of 7. HBV DNA was tested in serum samples collected at the time of new HBV infection by using PCR method.

Results The percentage of protective anti-HBs (> 10 S/N) dropped from 58.0% at age 7 to 27.4% at age 13. If those who received booster dose at age 7 were considered as seronegative for anti-HBs throughout the follow-up, then the anti-HBs seropositive rate at age 13 would be 24.4%. Sixty percent of boosted vaccinees showed anamnestic response, but the risk for new HBV infection was not different between boostered and non-boostered groups. Nine vaccinated children had new HBV infections with anti-HBc positivity as the only marker during 6-years？HH？HHfollow up. Eight of them had anti-HBs titers below 100 mIU/mL prior to new HBV infections. None became seropositive for HBsAg. Eight newly infected children were tested for HBV DNA and none was positive.

Conclusions The long-term efficacy against chronic HBsAg carriage is maintained. The protection against isolated anti-HBc positive infection is not complete, especially when serum anti-HBs titer falls to low level. Yet routine booster vaccination may not be needed to maintain immune memory and protection against chronic HBsAg carriage before 14 years of age.

Keywords：Hepatitis B Vaccination；HBsAg；anti-HBs；anti-HBc