Abstract

Background?XThe national HBV vaccination program to all newborn was initiated in Taiwan in 1986 that has resulted in a significant reduction of chronic HBV infection among the recent birthcohorts. However vaccinated children of indigenous origin not only mounted to a lower protective antibody response, but also had a higher HBV chronic carrier rate than that of Han children, a phenomenon now attributed to host backgroud. We now consider this population as having higher risk for HBV vaccine failure and HBV chronic infeciton, that warrants a close monitoring.

Purpose?XTo follow up the so called ?§highly risk group?? children for HBC chronic infection; to estimate the newly incidence rate and carrier rate; and to estimated vaccine efficacy in the field.

Method?XWe recruited all children attending kindergartens, elementary schools and a junior high school in two indigenous villages in ·s?? wherein a previous epidemiological studies were conducted in 1993. Under parental consent, the serum samples are collected from each child for HBV serological markers (HBsAg, anti-HBc, and anti-HBs titer). HBsAg carriers were selected for HBV genotyping. Serum vitamin levels were tested for selected children representing anti-HBs response of high and low groups. All information, including the ethnic background parents, maternal HBsAg status, and vaccination information of each child, was compiled as computerized format and analyzed by use of SAS statistical software.

Result?X Among the 93 kindergarten children, and 944 school children participating the study, HBV vaccine coverage rate is generally high. The naturally infection rate reached 20% in this population. Having been born to a HBV carrier mother is the most important factor associated with vaccine failure, the HBsAg carrier rates among children born to carrier and non-carrier mothers are 17.2% and 2.8%, respectively. Among the unvaccinated children who were born from carrier and non-carrier mother, the HBsAg carrier rates were 15.4% and 8.0%, respectively. The serum levels of vitamin A and E were normal in most children. About 11% HBV carrier who harbor the ??a?? determinant mutant. The HBV positive rate in PBMC is about 50~75% among children who had acquired natural HBV infection, but remained HBsAg negative, suggesting high rate of occult infection. From 1993 to now, the horizontal infection rate is about 1.3% (per year) and one children became a chronic carrier. Overall, kindergarten children showed a significantly lower HbsAg carrier rate, and much high vaccination coverage rate, as well as high percentage of children with

vaccine records available.

Discussions?XThe results of this study indicated a high rate of HBV infection and HBV vaccine failure among school children, and an improved vaccine coverage and efficacy among the kindergarten children. Such demarcation of differences in vaccine efficacy also coincide with the switch from the first to the second generation vaccine. While it is generally contended that the first and the second generation HBV vaccine are not qualitatively different, it should be noted that the difference in the amount of antigen may be of importance. It remains to be further elucidated. Of importance to vaccine policy is that high proportion of these children received first dose vaccination after 1 month of age; this is a point in focus for further improved vaccination program.

Key Word : HBV
Vaccine aborigine
Highly risk group