

Thesis Title Hepatitis B Antibody of 9-24 month children
after Hepatitis B Vaccination in Bangkok
Metropolitan Administration

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ABSTRACT

Hepatitis B vaccination has been included as part of Bangkok Metropolitan Administration (BMA)'s Expanded Program on Immunization (EPI) since April, 1992. This study measured levels of anti-HBs antibody among 9-24 month children who had completed a full course of hepatitis B vaccination. The sample population consisted of 272 children, randomly selected from those who received health services from 18 different BMA's health centers located throughout Bangkok. These children had been residing in Bangkok since the time of their births. Sera from mothers of the children were examined to ensure that they were neither infected with nor serving as carriers of the virus during their pregnancy at Anti-Natal Care Clinic. Additionally, these mothers also displayed no sign of protective antibody.

The study also verified that all studied children did receive their first dose of hepatitis B vaccination at the hospital after they were born. The second and third doses of hepatitis B vaccination were given at the BMA's health centers. The hepatitis B vaccine coverage in 9-24 month children who received the vaccine service at BMA health centers, the study found that 93.6% of children received complete 3 doses of hepatitis B vaccination, while 5.9% received only either 1 or 2 doses, and 0.5% had no vaccination. It is noted that health region number 5 had the lowest coverage ratio for hepatitis B vaccination. The method of Enzyme-Linked Immunosorbent Assay (ELISA) was used to detect the blood samples for HBV seromarkers, i.e. anti-HBs, anti-HBe, and HBsAg.

The findings, obtained approximately three to eighteen months after the third dose of hepatitis B vaccination, revealed that 230 out of 272 (84.6%) displayed the immunity, i.e. having anti-HBs antibody ≥ 10 mIU/ml. The means of anti-HBs antibody levels ($n = 272$) and protective antibody ($n = 230$) were 217.07 and 236.13 mIU/ml respectively. One child was tested positive for anti-HBe, while the other child was found to have HBsAg, both cases represented only 0.4% of the sample population. There was no statistically significant difference between age group and anti-HBs antibody levels ($P = 0.2405$). However, there was a negative correlation between child's age and the level anti-HBs ($r = -0.1940$; $P = 0.001$). This implied that the levels of antibody decreased as the child became older. There was significant difference in the mean of anti-HBs antibody levels

between 9-11 month age group and other groups ($P = 0.0270$). The comparison of antibody levels between male and female groups showed no significant difference ($P = 0.313$). Finally, there was no significant difference in the mean of anti-HBs antibody levels among health regions ($P = 0.4145$).

From this study, it was shown that the plasma-derived hepatitis B vaccine can effectively help the body develop adequate anti-HBs antibody against the hepatitis B virus in practice. Although, the seropositive rate was lower than 90 % but the mean value was satisfied. The vaccine can therefore be used to control and prevention the hepatitis B virus infection in Bangkok Metropolitan areas. However, there should be follow up to be needed for the booster dose because the antibody levels decreased when the child became older.