

## Occult hepatitis B infection among vaccinated cohort

### ABSTRACT

**BACKGROUND:** Occult hepatitis B is characterized by undetectable levels of surface antigen, but detectable levels of viral DNA and is becoming a major global threat due to: (i) the effect on the health of children born to carrier mothers despite the presence of passive immunoglobulin at birth (ii) immune escape of current vaccines; and (iii) spread through blood and blood products in post transfusion infection, organ donation, and sexual transmission. The aim of this study is to investigate occult hepatitis B virus among vaccines. **METHOD:** Four hundred and eight, vaccinee were recruited for this study. All samples were tested for hepatitis B surface antigen, hepatitis B surface and core antibodies using enzyme-linked immunosorbent assay kit (DRG International Inc., USA). Positive samples were re-tested to exclude false positive results. Molecular technique using a nested polymerase chain reaction was done using primers specific to the surface gene. **RESULTS:** Persistence of hepatitis B surface antibodies ( $\geq 10$  IU/L) was found in 62.5% (255/408) with 37.5% (153/408) having anti-HBs  $< 10$  IU/L in circulation. Hepatitis B core antibodies among vaccinated cohort were found to be 5.0% (20/408). Of which 80% (16/20) of the hepatitis B core antibodies positive, have positive hepatitis B surface antibodies ( $\geq 10$  IU/L) while 20% (4/20) are negative ( $< 10$  IU/L). The former is indicating immunity as a result of previous infection and the latter group are referred to as isolated anti-core, as described in previous studies (1). However none of the samples is hepatitis B surface antigen positive. Hepatitis B viral DNA was detected in all the core antigen positive individuals, contrary to studies in Turkey and Taiwan and in line with other similar studies(2). Occult hepatitis B infections have significant clinical importance since they can become reactivated when the immune system is suppressed and can be transmitted through blood or blood product transfusion, organs transplant, and sexual intercourse. **CONCLUSION:** The result of this study shows occult chronic HBV infection among adults who were vaccinated against hepatitis B vaccine at infant. The anti-HBs produced were induced by the vaccine they received but do not provide protection against the mutant's variant suggesting primary infection with mutant's hepatitis B virus.

**Keyword:** Hepatitis B: Vaccinated cohort; Infection.