

Project No : 3565/2006

**HLA class II association with Hepatitis B vaccine non-responsiveness
and hepatitis B virus clearance**

Principal Worker

Surg Cmde AK Praharaj

Unit

AFMC Pune

OBJECTIVES

About 5% - 15% of individuals vaccinated with conventional hepatitis B vaccine do not develop protective level antibody. Non-response has been linked to genetic background of the individual. In this study, subjects who did not develop protective level antibody to hepatitis B vaccine were subjected to HLA-DR high resolution typing to find out class II association.

METHODS

972 subjects who were vaccinated with full course of recombinant hepatitis B vaccine, were screened for anti-HBs by ELISA. Persons found to have anti HBs <10 IU/L were subjected to initially low resolution HLA-DR typing followed by high resolution typing for HLA-DRB1*07, 15,03 and 10 by SSP-PCR.

RESULTS

Out of 972 screened 87 (8.95%) were found to have antibody below protection level. Hepatitis B vaccine failure has been observed in 5% -15% of cases without any identifiable cause. This is attributed to the genetic factor of the individual. HLA-DRB1* 0701 was predominantly associated with vaccine non-responders.

RECOMMENDATIONS

Anti-HBs level should be measured after a full course of vaccination with hepatitis B vaccine and persons with anti-HBs below protection level (<10 IU/1) should be immunized with another course of the vaccine. After 2nd course of immunization if anti-HBs level is still below protection level, vaccination with third generation vaccine containing pre-S1, pre-S2 and S component should be tried. Subjects with vaccine failure should be educated with other modalities of preventive measures for HBV.

HLA-DR typing should be carried out in vaccine non-responders and those with HLA-DRB1*0701 allele should be immunized with newer vaccine. Individuals with HLA-DRB1*0701 allele suffering from Acute Viral Hepatitis are likely to develop chronicity and anti-viral treatment in these groups may be considered.