

## Overview on Hepatitis B Virus Infection

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### ABSTRACT

Hepatitis B virus (HBV) is a common cause of liver disease 9 cirrhosis, liver failure and hepatocellular carcinoma {HCC} throughout the world. The virus is transmitted through blood and other body fluids. Maximum cases are diagnosed during screening process of operative procedure, foreign travel, etc., and are asymptomatic. These asymptomatic cases act as reservoir of transmission of infection in the population. Many studies had been conducted on various stages of the infection (acute, chronic, immunotolerant phase, etc.) and HBV DNA levels. Most of the patients resolve the infection when infected in the earlier or childhood stage of life. This stage is called as acute stage. The patient may or may not develop significant symptoms. Those who do not resolve within six months are chronic patients evidenced with the presence of HBcIgG (IgG Hepatitis B core Ag) in their serum. The chronic phase is the most important stage to be taken care of. The patients HBV DNA level and other antigens-antibody against HBV virus parts in serum are continuously monitored after every interval of 3-6 months. Serum liver enzymes level is also considered. HBeAg (Hepatitis B envelope antigen) was initially considered for treatment as it is sign of active HBV replication but later it was found core mutants had evolved as a survival mechanism which terminates the translation of HBeAg. The HBV DNA level if >10,000 copies/ml is considered for treatment. There are few cases reported with reactivation of chronic cases. HBV Genotypes (8 genotypes and recently new genotypes had been reported) are also somewhere responsible for deciding the fate of infection. Vaccination and screening programmes had been launched in developed and developing countries. Much care must also be taken for completion of doses of vaccination and development of protective level of anti Hbs level (antibody to HbsAg) because many are non-responders. There are various techniques to diagnose the HBV like immunochromatography, enzyme linked immunoassay, chemiluminiscence, conventional PCR, real time PCR. Every technique has their advantages and disadvantage. The technique with best sensitivity and specificity is selected. The molecular diagnostic is the best approach but not done practically since requires expensive instrumentation, set up, technically skilled individual and costly reagents. The virus has also evolved with HBsAg mutants thus detection system fails to detect. Thus HBsAg and Hbc total antibody should be detected. If the patient is Hbc Total Ab positive it may be due past infection or due to current infection and those with HbsAg negative but Hbc Total Ab positive patients should be detected for HBV DNA by molecular diagnostics for final confirmation.

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