Chronic Hepatitis B infection

Chronic Hepatitis B (CHB) infection is defined as persistent detection of HBsAg for >6 months after initial exposure to the virus. Progression to chronic infection varies from:

- 90% among perinatally exposed (and unvaccinated) infants
- 30% among children age under 5 years
- <5% for adults.

The prolonged immunological response to infection can lead to the development of cirrhosis, liver failure, or hepatocellular carcinoma (HCC) over the long term.

Ideally, CHB patients should have suppressed HBV DNA levels <2,000 IU/mL (and ideally undetectable < 50 IU/mL) with ALT levels within the normal range.

The natural history of chronic HBV can be divided into 5 phases:

Chronic hepatitis B	HBeAg positive		HBeAg negative		
Chronic HBV infection	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
	Chronic HBV infection	Chronic hepatitis B	Chronic HBV infection	Chronic hepatitis B	Resolved HBV infection
HBsAg	High	High/ Intermediate	Low	Intermediate	Negative
HBeAg	Positive	Positive	Negative	Negative	Negative
HBV DNA	$>10^7$IU/mL	10^4-10^7 IU/mL	<2,000 IU/mL*	>2,000 IU/mL	<10 IU/mL‡
ALT	Normal	Elevated	Normal	Elevated†	Normal
Liver disease	Non/minimal	Moderate/ severe	None	Moderate/ severe	None§
Old terminology	Immune tolerant	Immune reactive HBeAg	Inactive carrier	HBeAg negative chronic hepatitis	HBsAg negative/ anti-HBc positive

*HBV DNA levels can be between 2,000 and 20,000 IU/mL in some patients without signs of chronic hepatitis;
†Persisitently or intermittently, based on traditional ULN (~40 IU/L).
‡cccDNA can frequently be detected in the liver;
§Residual HCC risk only if cirrhosis has developed before HBsAg loss.
EASL CPG HBV. J Hepatol 2017;67:370-98

www.ashm.org.au/publications "B Positive" - All you wanted to know about Hepatitis B - a guide for primary care providers".

Laboratory testing

Baseline testing recommended includes testing of liver function, full blood count, INR, alpha-fetoprotein (AFP), HBeAg/HBeAb*, HBV DNA (quantitative viral load), HCV antibody, hepatitis D virus antibody and antigen, HIV antigen/antibody, and hepatitis A IgG.

Monitoring required every 6-12 months depending on phase.

*Both HBeAg and HBeAb can be negative in the presence of pre-core and core mutation in CHB with high viral replication.

Treatment

Referral to specialist for consideration of treatment if evidence of active disease (abnormal ALT, detectable HBV, DNA > 2,000 IU/mL or evidence of chronic liver disease) or suspicion of immunosuppression or advanced liver disease.

Treatment consists of nucleoside / nucleotide analogue oral antiviral agents and/or pegylated interferon (IFN) injections.

As the eradication of HBV infection is not achievable with currently available therapy, the primary aim of treatment is to maintain HBV DNA suppression (< 2,000 IU/mL) in order to prevent progressive liver injury.

Loss of HBsAg and seroconversion to anti-HBs constitutes a complete response. Loss of HBsAg is not common after therapy.

Loss of HBeAg and seroconversion to HBeAb is associated with decreased viral replication and improved liver histology. Seroreversion to detectable HBeAg following treatment is reported in a significant number of patients if therapy is stopped soon after HBeAg becomes undetectable.

Complete recommendations and references can be found at the Gastroenterological Society of Australia website - www.gesa.org.au