Management and Treatment of Chronic Hepatitis B:
A Review of Various Guidelines

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Outline and Goals

- Outline basics of Hepatitis B
- Phases of Chronic Hepatitis B
- Evaluation of Chronic Hepatitis B
- Treatment of Chronic Hepatitis B
- Special Populations of Chronic Hepatitis B

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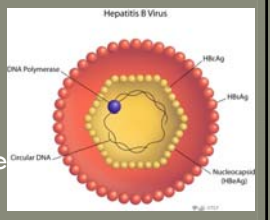
Hepatitis B Virus (HBV)

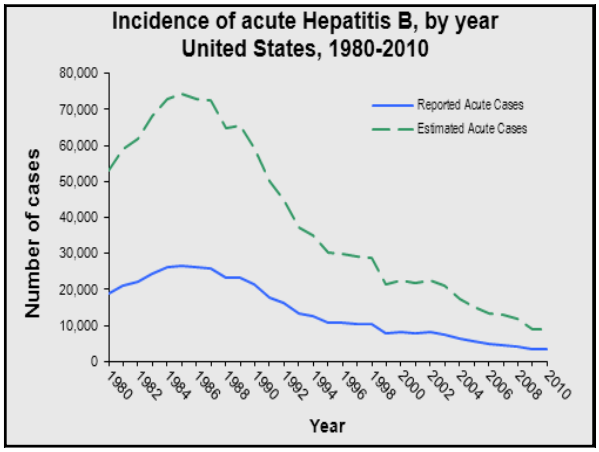
- DNA virus (ccc)
- Worldwide: 240 million with CHB
- 1.2 million persons in the US with chronic HBV infection(700k US born)
- 1 million deaths annually worldwide

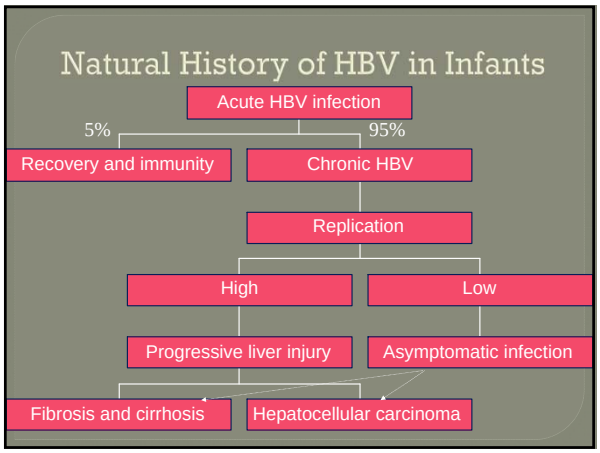


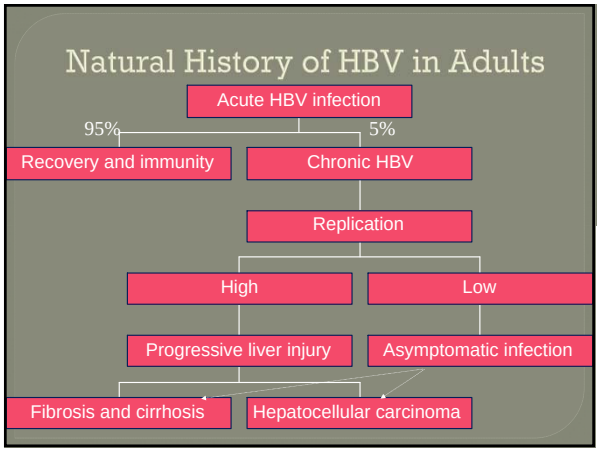
http:ocw.jhsph.edu/imageLibra
www.cdc.or

Prevalence of Chronic HBV Infection

www.cdc.or







IOM 2010 HBV Findings

- Internal Medicine doctors had significant gaps in knowledge of Hepatitis B
- Doctors did not know whom to screen
- Doctors did not know what tests to order
- Doctors where not clear as to correctly evaluate those with positive tests
- Doctors where unsure who to send to a specialist for care

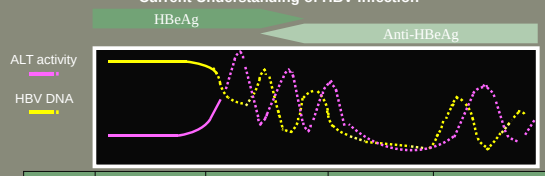
In response the US Department of Health issued an action plan for all Viral Hepatitis in 2011 for Primary Care doctors

Terms and Nomenclature

- Seroconversion
  - HBeAg
  - HBsAg
- Saturating System
  - Understand how the tests are done in the lab

4 Phases of Chronic HBV

Current Understanding of HBV Infection



Phase	Immune Tolerant	Immune Clearance	Inactive Carrier State	Reactivation
Liver	Minimal inflammation and fibrosis	Chronic active inflammation	Mild hepatitis and minimal fibrosis	Active inflammation

Optimal treatment times

Yim HJ, et al. Hepatology. 2006;43:S173-S181.

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Immune Tolerant

- **Definition:** HBeAg +, Normal ALT, High DNA
- Perinatal Transmission
- Biopsy: Non-inflammatory
- Lasts anywhere from 1-4 decades
- Key: Spontaneous or treatment induced HbeAg seroconversion is rare
- Some who have "High Normal" ALT may actually go on to develop cirrhosis earlier

Immune Tolerant Phase

- **Key Concept**: Received the virus when immune system was Immature and did not recognize it as foreign (High Viral load but normal ALT). Then the immune system matures later in life and we develop into the Immune Clearance Phase

What about Immune Tolerant Phase?

- Biopsy if:
  - ALT borderline high or elevated in patients > 40 years of age
- Treat if: Fibrosis or inflammation seen

REVEAL Study:
- 67% of patients: >40 years of age
- HBeAg + patients: Higher incidence of HCC
- Results: Persistent high serum HBV DNA, >2,000 IU/mL, were associated with increased risk of cirrhosis and HCC

Chen CJ, Yang HI
Risk of Hepatocellular Carcinoma across a biological gradient of serum Hepatitis B virus DNA level
REVEAL Study. JAMA 2006;295

4 Phases of Chronic HBV

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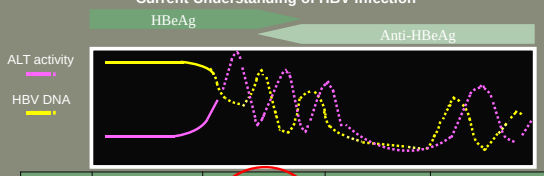

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Immune Clearance

- **Definition:** HBeAg + with variation in ALT and DNA
- Host Immune response activation
- Chronic Active Inflammation
  1. Rise of DNA/Fall in ALT
  2. Fall of DNA/Rise in ALT
- Spontaneous HBsAg Seroconversion 2-10%
- Length of phase is variable but ends with HBeAg Seroconversion

Exacerbations and Flares

- Some are actually asymptomatic
  - Lok et al→ about 40% are sub-clinical
- **Exacerbations:** may be associated with an elevation in the IgM anti-HBc titer, which may lead to misdiagnosis of acute HBV infection
- Exacerbations are believed to be due to a sudden increase in immune-mediated lysis of infected hepatocytes.
  - Preceded events: Rise in HBV DNA and Core Ag from nuclear to cytoplasmic sites
  - This suggests that immune clearance may be triggered by an increase in viral load or a change in the presentation of viral antigens.
- Risk factors: Male gender, ALT >200 at diagnosis, Age >20

Acute exacerbations in Chinese patients with chronic hepatitis B virus (HBV) infection. Incidence, predisposing factors and etiology. Lok AS, Lai CL J Hepatol. 1990;10(1):29

HBeAg

- Prevalence of HBeAg in Chronic Hep B
  - Non-Asian Adults- 10-20%
  - Asian Adults- 30-50%
- Prevalence increasing
  - Aging population of Hep B patients

HBe Ag→Anti-HBe

- 1. Most individuals go into the inactive hepatitis B phase ("inactive carrier"), characterized by normalization of serum ALT, lowering of HBV DNA below 2000 IU/mL, and improvement in liver inflammation and fibrosis
- 2. Persons in the immune-active phase of HBV infection are those at highest risk of developing cirrhosis and/or HCC and may need antiviral treatment.

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Inactive Carrier

- **Definition:** HBeAg Negative/ HBeAb Positive with Normal ALT and Low/Undetectable DNA
- Biopsy: variable depending on length of Immune Clearance phase, number of flares, and length of flare
- Can be entire life of patient
- **Inactive Carrier**- three Normal ALT levels and three DNA levels (DNA persistently<or=2000 IU/mL) in one year period

Fibrosis in Inactive Carrier?

- Reviewed 3 studies
  - Patients with high serum HBV DNA >20,000 were biopsied- Age >40 showed significant fibrosis
  - Meta-analysis found that significant liver disease was rare in those with a persistently normal ALT who had an HBV DNA level ≤20,000 IU/mL
  - Fibrosis was rare in those with truly persistent normal ALT defined by at least three normal ALT over a 12-month period and HBV DNA 2000 IU/mL

Inactive Carrier

- Who will go on to HBeAg (-) chronic hepatitis/Reactivation or revert back to HBeAg (+) hepatitis?
  - Less Likely: Female Sex, Wild Type basal core promoter
  - No single value of HBV DNA above which future reactivation is likely to occur and below which the disease is likely to be quiescent
  - Inactive Carrier for >5-10 years: likely would stay an Inactive Carrier for life

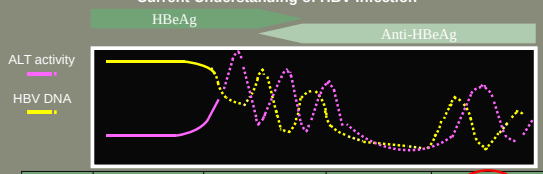
Chu, C M "Level of hepatitis B virus DNA in inactive carriers with persistently normal levels of alanine aminotransferase". Clinical gastroenterology and hepatology (1542-3565),

Monitoring Inactive Carrier

- HBsAg Seroconversion- 1% of cases/year
- Follow entire lifetime
  - ALT Q6 months and periodic DNA levels
  - Follow closer if DNA levels >2000

4 Phases of Chronic HBV

Current Understanding of HBV Infection



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Inactive Carrier (IC) vs HBeAg (-) Chronic Hepatitis

- **Inactive Carrier-** three Normal ALT levels and three DNA levels (DNA persistently<or=2000 IU/mL) in one year period
- HBsAg levels combined with DNA Levels
  - Followed HBeAg (-) patients for 30 months
  - Median Level of HBsAg
    - IC-62 IU/mL
    - Chronic Hepatitis- 3029 IU/mL
  - **HBV-DNA < (2000 IU/mL) and HBsAg < (1000 IU/mL) –single point data can predict IC state with 97% accuracy**

Hepatitis B Surface Antigen Serum Levels Help to Distinguish Active From Inactive Hepatitis B Virus Genotype D Carriers
MAURIZIA ROSSANA BRUNETTO
GASTROENTEROLOGY 2010;139:483–490

HBeAg (-) Chronic Hepatitis (Reactivation)

- HBeAg (-) but fluctuating ALT and DNA
- Have a predominance of HBV virions with nucleotide substitutions in the precore and/or the basal core promoter regions that are hence unable to express low levels of HBeAg
  - 30-90% in Asia/Europe
  - 10-20% in America
- Risk factors: Male Sex, ALT >200 at diagnosis, Age >20

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Goals of Evaluation and Therapy

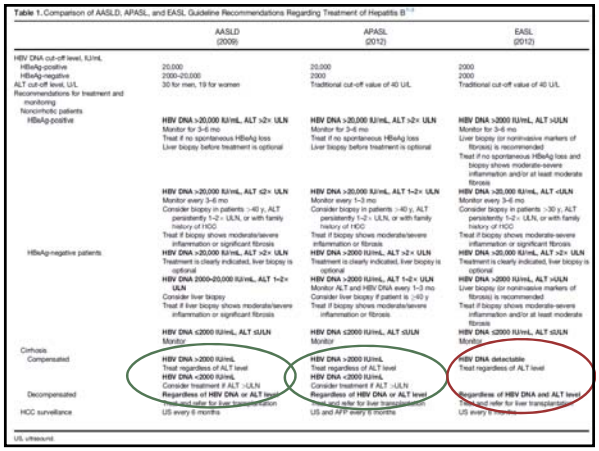
- 1. Prevent Cirrhosis and Complications
- 2. Prevent HCC and improve quality

Who do I treat now?
Who do I treat later?
Who should I monitor closely/from a distance?
When can I stop treatment?
Who must continue treatment?

Table 1. Comparison of AASLD, APASL, and EASL Guideline Recommendations Regarding Treatment of Hepatitis B[1-3]

	AASLD (2009)	APASL (2012)	EASL (2012)
HBV DNA cut-off level, IU/mL			
HBeAg-positive	20,000	20,000	2000
HBeAg-negative	2000–20,000	2000	2000
ALT cut-off level, U/L	30 for men, 19 for women	Traditional cut-off value of 40 U/L	Traditional cut-off value of 40 U/L
Recommendations for treatment and monitoring			
Noncirrhotic patients			
HBeAg-positive	**HBV DNA >20,000 IU/mL, ALT ≥2× ULN** Monitor for 3–6 mo Treat if no spontaneous HBeAg loss Liver biopsy before treatment is optional	**HBV DNA >20,000 IU/mL, ALT >2× ULN** Monitor for 3–6 mo Treat if no spontaneous HBeAg loss Liver biopsy before treatment is optional	**HBV DNA >2000 IU/mL, ALT >ULN** Monitor for 3–6 mo Liver biopsy (or noninvasive markers of fibrosis) is recommended Treat if no spontaneous HBeAg loss and biopsy shows moderate-severe inflammation and/or at least moderate fibrosis
	HBV DNA >20,000 IU/mL, ALT ≤2× ULN Monitor every 3–6 mo Consider biopsy in patients >40 y, ALT persistently 1–2× ULN, or with family history of HCC Treat if biopsy shows moderate/severe inflammation or significant fibrosis	**HBV DNA >20,000 IU/mL, ALT 1–2× ULN** Monitor every 1–3 mo Consider biopsy in patients >40 y, ALT persistently 1–2× ULN, or with family history of HCC Treat if biopsy shows moderate/severe inflammation or fibrosis	**HBV DNA >20,000 IU/mL, ALT <ULN** Monitor every 3–6 mo Consider biopsy in patients >30 y, ALT persistently 1–2× ULN, or with family history of HCC Treat if biopsy shows moderate-severe inflammation or significant fibrosis
HBeAg-negative patients	**HBV DNA >20,000 IU/mL, ALT >2× ULN** Treatment is clearly indicated, liver biopsy is optional	**HBV DNA >2000 IU/mL, ALT >2× ULN** Treatment is clearly indicated, liver biopsy is optional	**HBV DNA >20,000 IU/mL, ALT >2× ULN** Treatment is clearly indicated, liver biopsy is optional
	HBV DNA 2000–20,000 IU/mL, ALT 1–2× ULN Consider liver biopsy Treat if liver biopsy shows moderate/severe inflammation or significant fibrosis	**HBV DNA >2000 IU/mL, ALT 1–2× ULN** Monitor ALT and HBV DNA every 1–3 mo Consider liver biopsy if patient is ≥40 y Treat if biopsy shows moderate/severe inflammation or fibrosis	**HBV DNA >2000 IU/mL, ALT >ULN** Liver biopsy (or noninvasive markers of fibrosis) is recommended Treat if biopsy shows moderate-severe inflammation and/or at least moderate fibrosis
	HBV DNA ≤2000 IU/mL, ALT ≤ULN Monitor	**HBV DNA ≤2000 IU/mL, ALT ≤ULN** Monitor	**HBV DNA ≤2000 IU/mL, ALT ≤ULN** Monitor
Cirrhosis			
Compensated	**HBV DNA >2000 IU/mL** Treat regardless of ALT level **HBV DNA <2000 IU/mL** Consider treatment if ALT >ULN	**HBV DNA >2000 IU/mL** Treat regardless of ALT level **HBV DNA <2000 IU/mL** Consider treatment if ALT >ULN	**HBV DNA detectable** Treat regardless of ALT level
Decompensated	**Regardless of HBV DNA or ALT level** Treat and refer for liver transplantation	**Regardless of HBV DNA or ALT level** Treat and refer for liver transplantation	**Regardless of HBV DNA and ALT level** Treat and refer for liver transplantation
HCC surveillance	US every 6 months	US and AFP every 6 months	US every 6 months

US, ultrasound.



Treatment in Cirrhosis

- AASLD/APASL: Compensated
  - If DNA >2000: Treat regardless of ALT
  - If DNA <2000: Treat if ALT >ULN
- EASLD: Compensated
  - Treat if any detectable DNA present
- Decompensated: Treat and Transplant Eval.

Treatment in Cirrhosis

- Rationale for Europeans:
  - 1. RCT (n=651); DNA >150,000 and cirrhosis/fibrosis
    - Lamivudine showed to decrease progression of disease determined by rate of HCC and Child-Pugh Score

Lamivudine for patients with chronic Hepatitis B and advanced liver disease
Liaw YF, et al.
NEJM 2004;351

  - 2. Tenofovir vs Adefovir (n=348) 5 year treatment with baseline biopsy and 5 year biopsy
    - Tenofovir Group
      - 51% had regression of fibrosis
      - 71/96 (74%) had regression of cirrhosis

Regression of cirrhosis during treatment with tenofovir for chronic Hepatitis B
Lancet: 2013;381

Treatment in Cirrhosis

- Rationale for Europeans:
  - Low resistance to newer NUCs
  - Established safety of medications
  - Difficulty in predicting who will get HCC

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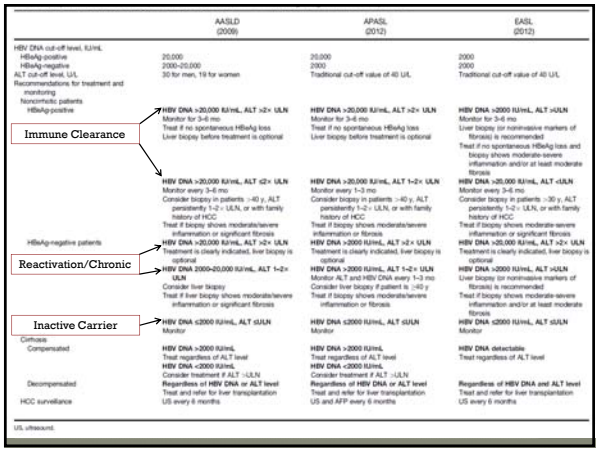
HBeAg-negative patients	3	**HBV DNA >20,000 IU/mL, ALT >2× ULN** Treatment is clearly indicated, liver biopsy is optional	**HBV DNA >2000 IU/mL, ALT >2× ULN** Treatment is clearly indicated, liver biopsy is optional	**HBV DNA >20,000 IU/mL, ALT >2× ULN** Treatment is clearly indicated, liver biopsy is optional
	4	**HBV DNA 2000–20,000 IU/mL, ALT 1–2× ULN** Consider liver biopsy Treat if liver biopsy shows moderate/severe inflammation or significant fibrosis	**HBV DNA >2000 IU/mL, ALT 1–2× ULN** Monitor ALT and HBV DNA every 1–3 mo Consider liver biopsy if patient is ≥40 y Treat if biopsy shows moderate/severe inflammation or fibrosis	**HBV DNA >2000 IU/mL, ALT >ULN** Liver biopsy (or noninvasive markers of fibrosis) is recommended Treat if biopsy shows moderate-severe inflammation and/or at least moderate fibrosis
	5	**HBV DNA ≤2000 IU/mL, ALT ≤ULN** Monitor	**HBV DNA ≤2000 IU/mL, ALT ≤ULN** Monitor	**HBV DNA ≤2000 IU/mL, ALT ≤ULN** Monitor
Cirrhosis				
Compensated		**HBV DNA >2000 IU/mL** Treat regardless of ALT level **HBV DNA <2000 IU/mL** Consider treatment if ALT >ULN	**HBV DNA >2000 IU/mL** Treat regardless of ALT level **HBV DNA <2000 IU/mL** Consider treatment if ALT >ULN	**HBV DNA detectable** Treat regardless of ALT level

Treatment in Non-Cirrhosis

- 1. HBeAg (+): Elevated DNA and rise ALT
- 2. HBeAg (+): Elevated DNA and mild rise in ALT
- 3. HBeAg (-): Elevated DNA and rise ALT
- 4. HBeAg (-): Elevated DNA and mild rise in ALT



Immune Clearance Treatment

- AASLD/APASL:
  - HBV DNA >20,000 and ALT > 2x ULN
  - Monitor for 6 months post diagnosis
  - Treat if no spontaneous HBeAg loss
  - No need for biopsy
- EASL:
  - HBV DNA >2000 and ALT>ULN
  - Monitor for 6 months post diagnosis
  - **Biopsy prior or non-invasive fibrosis markers**
  - Treat if no spontaneous HBeAg loss and biopsy shows moderate inflammation or fibrosis

Immune Clearance "Gray Area" HBeAg + Chronic Hepatitis

- Gray Area: HBV > 20,000 and elevated ALT (variable)
- AASLD/ APASL/ EASL:
  - Variable cut-offs for ALT, and requirements for biopsy
- AASLD: HBV >20,000 and ALT < 2 xULN
  - Monitor every 3-6 months
  - Consider biopsy if ALT persistently elevated 1-2 xULN, Age >30, or Family hx of HCC
  - Treat: biopsy shows severe inflammation or fibrosis

HBeAg (-) Chronic Hepatits B

- AASLD/ EASL/ APASL:
  - TREAT: DNA >20,000 and ALT > 2x ULN
- When DNA is between >2000:
  - There is variability in cutoffs between ALT levels, age, and DNA monitoring as to when biopsy is indicated
  - If Biopsy done: Treat if biopsy shows severe inflammation or fibrosis

Summary of Evaluation

- 1. HBeAg (+): Elevated DNA and rise ALT
  - Treatment after 6 month eval
- 2. HBeAg (+): Elevated DNA and mild rise in ALT
  - Biopsy +/- Treatment
- 3. HBeAg (-): Elevated DNA and rise ALT
  - Treatment
- 4. HBeAg (-): Elevated DNA and mild rise in ALT
  - Biopsy +/-Treatment

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Treatment of Chronic Hepatitis

- The ultimate goal is to prevent cirrhosis, hepatic failure and HCC.
- IFN-Predefined durations
- NUCs- Keep until endpoints achieved
- **HBeAg (+):** Viral suppression can be maintained 50-90% once treatment stopped. (assuming HBeAg Seroconversion)
- **HBeAg(-):** Relapse is frequent after stopping medications

Treatment Options

- IFN
- Tenofovir and Truvada
- Entecavir
- Telbivudine
- Lamivudine
- Adefovir

Treatment Options

- **IFN**
- Tenofovir and Truvada
- Entecavir
- Telbivudine
- Lamivudine
- Adefovir

IFN Treatment HBeAg (+) Chronic Hepatitis

- HBeAg loss and DNA suppression
  - 30%
- HBsAg loss
  - 3% @ 6 months post treatment
  - 11% @ 3 years post treatment

IFN Treatment HBeAg (-) Chronic Hepatitis

- DNA suppression
  - 40%
- HBsAg loss
  - 4% @ 6 months post treatment
  - 6% @ 3 years post treatment

IFN Treatment Monitoring

- 12 week: Check HBsAg Level and DNA
  - If HBsAg elevated then stop treatment
  - >90% predictor of treatment failure
- OR/ if no decrease in HBV DNA at 3 and 6 months then stop
- Guidelines vary in regards to checking DNA level, HBeAg, HBeAb, LFTs

IFN Review

- "Good" Option in young HBeAg (+) patient with increased ALT at diagnosis with no cirrhosis
- Increased Side effects
- Finite duration (12 months)
- Response Rate: HBsAg Seroconversion
  - HBeAg (+): 11%
  - HBeAg (-): 6%

Treatment Options

- IFN
- Tenofovir
- Entecavir
- Telbivudine
- Lamivudine
- Adefovir

Nucleos(t)ide analogues (NUCs) Potency

1. Tenofovir- Nucleotide
2. Entecavir-Nucleoside
3. Telbivudine-Nucleoside
4. Lamivudine- Nucleoside
5. Adefovir-Nucleotide

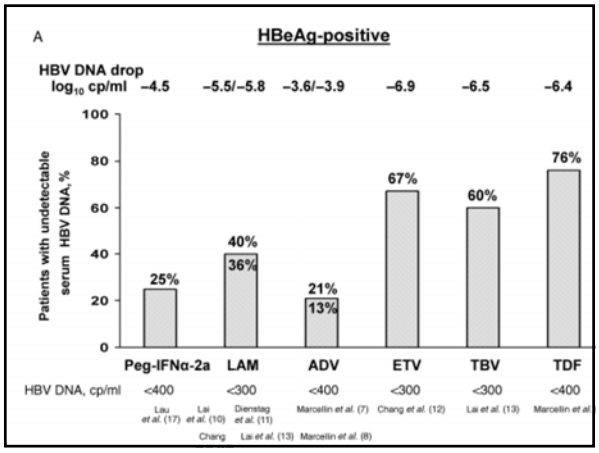
Liver INTERNATIONAL
OFFICIAL JOURNAL OF THE INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE LIVER

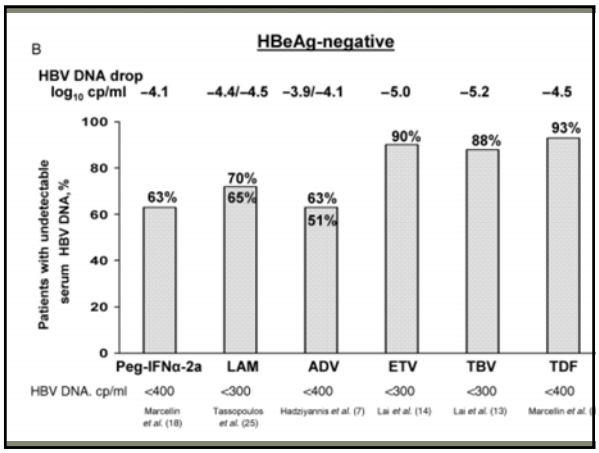
Liver International ISSN 1478-3223

Treatment of HBeAg-negative chronic hepatitis B patients with nucleos(t)ide analogues

George V. Papatheodoridis

2nd Department of Internal Medicine, Athens University Medical School, Hippokration General Hospital of Athens, Athens, Greece





HBsAg and Viral suppresion with NUCs

- HBsAg loss rate: 1%
- DNA suppression: 93%
  - Compared to IFN at 43%
- ALT normalization: 76 %

Monitoring Treatment

- All Guidelines essentially the same
- HBV DNA: Q3 months then Q6months once undetectable
- If HBeAg (+): Q6 months HBeAg and Anti-HBe
- If HBeAg (-): Yearly HBV DNA

Stopping Therapy with NUCs

- HBeAg (+): Can give 12 months of consolidation therapy
  - Stop Therapy if: HBeAg seroconverion and undectable DNA
  - If Cirrhotic: Treat until HBsAg loss (essentially forever)
- HBeAg (-):
  - EASL/AASLD: Treat until HBsAg loss (essentially forever)
  - APASL: after 2-5 years undetectable DNA at 2 separate occasions 6 months apart then can STOP: (cost issue)
  - If Cirrhotic: Treat until HBsAg loss (essentially forever)

Navigating the Maze of Hepatitis B Treatments

ANNA SUK-FONG LOK

Right Endpoints

- Inactive Carrier: HBsAg positive, HBeAg negative, Low/Undec. DNA, Normal ALT
- Functional Cure: HBsAg negative and Undectable DNA
- Complete Cure: absence cccDNA

Norah Terrault MD
AASLD Liver Meeting
2017
UCSF

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Special Populations

Management of Co-Infected Patients

HBV and HCV

- Data lacking in new era of DAA's
- Treatment Goals:
  - Make sure HBV is very well controlled before beginning HCV therapy
  - Monitor HBV DNA and ALT monthly
  - Some risk of Resistance with Entecavir

Special Populations

Management of Women of Childbearing Age

Basics of Treatment in Pregnancy

- Viral Load starting therapy: 200,000 IU
- Therapy started about 28-32 weeks gestation
- Discontinuation of therapy usually 3 months post-partum
- Continue to recommend breastfeeding

Factors Associated With Perinatal Transmission

- Maternal
  - High HBV DNA level at time of delivery
  - HBeAg-positive status
- Infant
  - Failure to receive or complete HBIG/vaccination series

Buchanan C, et al. Clin Liver Dis. 2010;14:495-504.

CDC Recommendations: Care of Newborns

- All newborns should receive birth dose of HBV vaccine
- Management of newborns to HBsAg-positive mothers
  - Administer HBIG and HBV vaccine within 12 hrs of birth
  - Continue HBV vaccine series with 2 additional doses
    - Total of 3 doses, given at birth, 4 wks to 2 mos of age, and 6 mos of age
    - If preterm weighing < 2000 g, initial HBV vaccine does not count as part of the 3-dose series (due to decreased efficacy); should receive 3 additional doses
  - Should receive postvaccination testing (HBsAg and anti-HBs) at 9-18 mos

Centers for Disease Control and Prevention. MMWR Morb Mortal Wkly Rep. 2005;54(RR-16):1-39.

Breastfeeding is Not Contraindicated for Infants Born to HBsAg-Positive Mothers

- No increased risk of HBV transmission
  - Breastfed infants are not at higher risk than formula fed prior to vaccination
  - Neonates who are correctly immunized are protected
- No increased additional risk of immunoprophylaxis failure
- Limited data on safety of lactation among newborns of HBsAg-positive mothers receiving antiviral therapy
  - Prescribing information recommends that mothers on anti-HBV therapy refrain from breastfeeding or discontinue antiviral use if they elect to breastfeed

1. Wang JS, et al. Int J Clin Pract. 2003;57:100-102.
2. Hill JB, et al. Obstet Gynecol. 2002;99:1049-1052.

Special Populations

Preventing Reactivation of Hepatitis B

What Is HBV Reactivation?

- Reappearance of active necroinflammatory liver disease in a person known to be inactive HBsAg carrier or have resolved HBV
- Well-characterized syndrome
  - Abrupt reappearance of or increase in HBV DNA in previously inactive or resolved HBV infection
  - Often accompanied by recurrence of disease activity
  - May occur spontaneously or as a result of immunosuppression

Phases of Reactivation

- HBV may persist in a latent replicative form for prolonged periods of time despite evidence of viral clearance
- **Phase 1: Increase in HBV replication**
  - Abrupt increase in viral replication occurs soon after initiation of immunosuppression
  - In HBeAg-negative patients, HBeAg may reappear in the serum
- **Phase 2: Hepatic injury**
  - Hepatocellular injury arises when immunosuppression is withdrawn or decreased
  - Increased aminotransferase levels observed, while HBV DNA levels may start to decrease
  - In severe cases, symptoms and jaundice develop, which can be fatal
- **Phase 3: Recovery**
  - Resolution of liver injury
  - HBV markers restored to baseline levels

Causes and Forms of HBV Reactivation

- Spontaneous
- Progressive immunodeficiency (HIV disease)
- Sudden withdrawal of antiviral therapy
- Cancer chemotherapy
- Immunosuppression for autoimmune or allergic conditions
- Transplantation
  - Kidney, heart, lung
  - Liver (reactivation in graft)
  - Bone marrow

Risk of Reactivation by Disease

- Bone marrow transplantation
- Organ transplantation
- Leukemia
- Lymphoma
- Myeloma
- Solid tumors
- HIV
- Autoimmune diseases
- Inflammatory bowel disease

Decreasing risk

Alvarez-Suárez B, et al. Rev Esp Enferm Dig. 2010;102:542-552. Lau GK. Bone Marrow Transplant. 1997;8:795-799. Roche B, Samuel D. Liver Int. 2011;31(Suppl 1):104-110. Hwang JP, et al. AASLD 2011. Abstract 172.

14

Reactivation With Chemotherapy

- May occur during or after chemotherapy
- **Without prophylaxis** for HBV, reactivation occurs in as many as **85% of HBsAg-positive** patients with non-Hodgkin's lymphoma
  - 30% to 50% rate of HBV-related death among those receiving steroid-containing chemotherapies
- Appropriate antiviral prophylaxis significantly decreases the risk of chemotherapy-related reactivation of HBV

Loomba R, et al. Ann Intern Med. 2008;148:519-528.
Evens A, et al. Ann Oncol. 2011;22:1170-1180.

Low Rates of Screening in Cancer Patients At Risk for HBV Reactivation

- Retrospective cohort, chart review of 10,729 patients with solid or hematologic cancers who received initial chemotherapy between 2004-2007
- Only 17% of patients screened and only 20% of those at risk for HBV reactivation screened
- 34 patients experienced HBV reactivation

Hwang JP, et al. AASLD 2011. Abstract 172.

HBV Prophylaxis: AASLD Guidance on Choice and Duration of Therapy

- Lamivudine can be used if the anticipated duration of treatment is short (≤ 12 mos) and baseline serum HBV DNA not detectable
- Tenofovir or entecavir preferred if longer duration of treatment anticipated
- Patients with baseline HBV DNA < 2000 IU/mL should continue treatment for at least 6 mos after completion of chemotherapy or immunosuppression
- Patients with baseline HBV DNA > 2000 IU/mL should continue treatment until they reach treatment endpoints as in immunocompetent patients

Lok AS, et al. Hepatology. 2009;50:661-662.

Summary of HBV Reactivation

- HBV reactivation is being recognized with increased frequency
- Can be due to a number of causes, including iatrogenic immunosuppression
- With the use of more potent immunosuppression, it can be seen in with patients who are anti-HBc–positive only
- HBV screening needs to be performed routinely in cases where immunosuppression will occur
- HBV reactivation can be prevented with the use of antiviral agents administered prophylactically

Hoofnagle JH. Hepatology. 2009;49(5 suppl):S156-S165. Lok AS, et al. Hepatology. 2009;50:661-662. Keeffe EB, et al. Clin Gastroenterol Hepatol. 2008;6:1315-1341.

Thank you

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- Ana Lok, MD
- Brendan Mcguire, MD
- Joe Bloomer, MD
- AASLD Foundation