

Hepatitis B virus

Mark Wong, M.D. May 24, 2022

Rosalba:

Age: 57 year old female

Background: Born in US, never travel

PMHx: None

Family Hx: none

Social Hx: Lives with husband with hepatitis B

HPI: Visiting with GI doctor and wanted to know if she has hepatitis B

Rosalba: What test would you order

A: HBsAg

B: HBsAg, Anti-HBc

C: HBsAg, Anti-HBc, Anti-HBs

D: HBV DNA

E: CMP

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Rosalba: actual test ordered

HBsAg and CMP

Comment by GI: Please advise pt that she does not have hepatitis B virus.

**GI continue to check for the same test every 6 months.
Is that correct?**

Rosalba:

Should have ordered:
HBsAg, Anti-HBc, Anti-HBs.

If all negative

What should you do next?

Rosalba:

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HBsAg, Anti-HBc, Anti-HBs.

If all negative

What should you do next?

Hepatitis B Vaccine!!!

Indication for HBV vaccine:

- Any non immune adult desiring vaccination
- Sexually active persons who are not in a monogamous relationship (any person with more than 1 sexual partner with in the past 6 months)
- Sexual partners of persons who are HBsAg positive
- Persons seeking evaluation or treatment for STD
- Men who have sex with men
- Household contacts of persons who are HBsAg positive
- Resident & staff member of institution for person who are developmentally disabled
- Current or recent injection drug user
- Health care & public safety workers with anticipated risk of exposure
- Person with ESKD (HD or PD)
- International travelers to regions with intermediate or high levels of endemic HBV
- Person with chronic liver disease
- Person with HIV
- Pregnant patient with risk of infection or serious outcome from infection

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Steve:

Age: 40 year old male

Background: Parents immigrated from Asia

PMHx: none

Presentation: routine exam

Family Hx: does not recall family history of HBV or liver cancer

Social Hx: does not drink alcohol, married to Caucasian women, plans to start family within a year

Steve: question

What should patient be screen for?

A: HBsAg

B: Anti-HBc

C: Anti-HBs

D: HBeAg

E: A and B

Steve: question

What should patient be screen for?

A: HBsAg

B: Anti-HBc

C: Anti-HBs

D: HBeAg

E: A, B & C

Who should be screen for HBV

- Born/raised in region with high rate of HBV. Asia, Africa, South Pacific, European Mediterranean, Eastern Europe, South America, Honduras, Guatemala, Middle East (except Israel & Cyprus)
- US born not vaccinated whose parents born in endemic areas
- Household or sex contact HBsAg positive
- IV drug use
- multiple sex partners or h/o STD
- Men who have sex with men
- H/O incarceration
- H/O HCV or HIV
- Renal replacement therapy
- Pregnancy
- Elevated liver test of unknown cause

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Steve:

HBsAg positive/anti-HBs negative

Anti-HBc positive

HBeAg positive/anti-HBe negative

HBV DNA 20,000,000

ALT 84

Platelets 200,000

Serum albumin 3.9

Total bilirubin 0.9

FibroScan 2.4kPa (F1)

eGFR 83

Ultrasound no mass/AFP WNL

What do you tell Steve

- He has HBV and need to consider treatment
- His close contact need to be screen for HBV, if no HBV, will need vaccination
- He should consider imaging for screening for HCC

Rosa:

Age: 59 year old female

Background: Born in US, never travel

PMHx: None

Family Hx: none

HPI: Admitted to ICU for acute elevation of liver test ALT 3000 and confusion

Exam: pupils equal round and reactive to light

What test do you order?

A: Acute hepatitis panel

B: Consult hepatology

C: Consult neurology

D: CT head

E: order different test

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Test order

- Hep A IgM
- Anti-HBc IgM
- HBs Ag
- Hep C Ab
- PT/INR

Test results

- Hep A IgM negative
- Anti-HBc IgM positive
- HBs Ag positive
- Hep C Ab negative
- PT/INR 4

Rosa

Diagnosis with acute hepatitis B

What additional question do you ask?

Rosa

Diagnosis with acute hepatitis B

What additional question do you ask?

How did she get Hepatitis B virus?

Zhong:

Age: 34 year old female

Background: Immigrated from Asia ~15 years ago

PMHx: none

Family Hx: none

Social Hx: lives with husband

HPI: presented to ED with acute right lower quadrant abdominal pain.

CT with heterogeneous mass inferior right liver 6.4cm, small amount hyper dense perihepatic & pelvic fluid concerning for bleed.

AFP 333, biopsy proven HCC

Zhong: What HBV test do you order?

A: HBsAg

B: Anti-HBc IgG

C: HBeAg

D: HBV DNA

E: A & B

Zhong: What HBV test do you order?

A: HBsAg

B: Anti-HBc IgG

C: HBeAg

D: HBV DNA

E: A & B

Zhong: Which test belongs to her

A: HBsAg+, Anti-HBs-, Anti-HBc+, HBeAg-, Anti-HBe+, DNA 3M

B: HBsAg+, Anti-HBs-, Anti-HBc+, HBeAg+, Anti-HBe-, DNA 3000

C: HBsAg-, Anti-HBs+, Anti-HBc+, HBeAg-, Anti-HBe+, DNA <10

Zhong: Which test belongs to her

A: HBsAg+, Anti-HBs-, Anti-HBc+, HBeAg-, Anti-HBe+, DNA 3M

If DNA was 3000 then Inactive chronic hepatitis B

B: HBsAg+, Anti-HBs-, Anti-HBc+, HBeAg+, Anti-HBe-, DNA 3000

If DNA was 3M then Immune-tolerant chronic hepatitis B

C: HBsAg-, Anti-HBs+, Anti-HBc+, HBeAg-, Anti-HBe+, DNA <10

Resolved previous infection

Zhong: teaching points

She has HBV from previous infection. Should she get US yearly?

HBV with increase risk of HCC, should get US/axial imaging q6M

-Cirrhosis

-Asian + male >40yo or female >50yo

-sub-Saharan African decent >20yo

-persistent ALT elevation & DNA >10,000 for few years

-Family history of HCC

Minh:

Age: 60 year old male

Background: Immigrated from Asia ~30 years ago

PMHx: CHB, rheumatoid arthritis, DM, CKD 4

Family Hx: uncle who died of HCC

Social Hx: drinks alcohol occasionally

Disease characteristics: Elevated HBV DNA and ALT

Minh: labs

HBsAg positive/anti-HBs negative

HBeAg negative/anti-HBe positive

HBV DNA 4200

ALT 65

Platelets 135,000

Serum albumin 3.3

Total bilirubin 1.3

INR 1.3

eGFR 29

Ultrasound normal, AFP 5

What patient should undergo treatment for HBV

-Acute liver failure

-Infection in immune-active phase or reactivation phase

-Cirrhosis

-Immunosuppressed patient

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-Acute liver failure

-Infection in immune-active phase or reactivation phase

-Cirrhosis Minh's FibroTest 0.77 (F4)

-Immunosuppressed patient

HBV available treatment

Neucloside

- lamivudine (LAM)
- entecavir (ETV)
- telbivudine (TEL)

Neucotide

- adefovir dipivoxil (ADV)
- tenofovir disoproxil (TDF)
- tenofovir alafenamide (TAF)

Interferon (finite/48weeks)

- peginterferon alfa 2a

Joetta:

Age: 47 year old female

Background: Immigrated from Africa ~9 years ago, married with a children

PMHx: none

Presentation: stage 2 left BCA, dx 3 months ago, on chemotherapy, presented with pruritus, yellowing of eyes. Chemo was change from Adriamycin, cyclophosphamide a month ago

Family Hx: none

Social Hx: no alcohol

Labs: ALT 1462, INR 1.6

Joetta: What test do you order?

A: Hep A total

B: Anti-HBs

C: Anti-HBc IgM

D: Anti-HBc IgG

Joetta: What test do you order?

A: Hep A total

B: Anti-HBs

C: Anti-HBc IgM

D: Anti-HBc IgG

And Anti-HA IgM, Hep C Ab

Joetta:

HBsAg positive/anti-HBs negative

HBeAg negative/anti-HBe positive

HBV DNA 8810

ALT 3000

Platelets 251,000

Serum albumin 3.9

Total bilirubin 8.1

Ultrasound no mass/AFP 14.4

Prophylactic oral antiviral therapy for HBs Ag+ or isolated Anti-HBc Ab IgG receiving B-cell depleting therapy

- rituximab or afatumumab
- Prednisone >10mg/d for 4 weeks
- anthracycline derivatives
- tumor necrosis factor-alpha
- tyrosine kinase inhibitors

Thank you

Question?