

Hepatitis A

Screening Labs

anti-HA IgG	Demonstrates immunity (either through vaccination or prior infection)
OR	
Hepatitis A Total Antibody	
anti-HA IgM	Demonstrates acute infection

Hepatitis B

Screening Labs

Initial Screening:	HBsAg, anti-HBc IgG, anti-HBs (Hepatitis B Surface Antibody)
All HBsAg+ subjects:	HBeAg, anti-HBeAb, quantitative HBV DNA level by PCR, Alpha-fetoprotein (AFP), Hepatitis D (Delta) Antibody (screen for co-infection)

Interpretation of Diagnostic Tests

	Acute HBV Infection	Past Exposure (Immunity)	Vaccine Responder	Chronic HBV Infection	Chronic Precore Mutant	Inactive Carrier
HBsAg	+	-	-	+	+	+
anti-HBs	-	+	+	-	-	-
HBeAg	+	-	-	+	-	-
anti-HBe	-	+/-	-	-	+	+
anti-HBc IgG	+	+	-	+	+	+
anti-HBc IgM	+	-	-	-	-	-
HBV DNA (PCR)	+	-	-	+	+	-

If HBsAg(-), anti-HBc(+), and anti-HBs(-) = several possible interpretations

- Recovering from acute HBV infection
- Immune but undetectable level of anti-HBs
- False positive anti-HBc and susceptible to infection
- HBV carrier with undetectable HBsAg level

Obtain quantitative HBV DNA level by PCR and consider repeating initial screen.

Hepatitis C

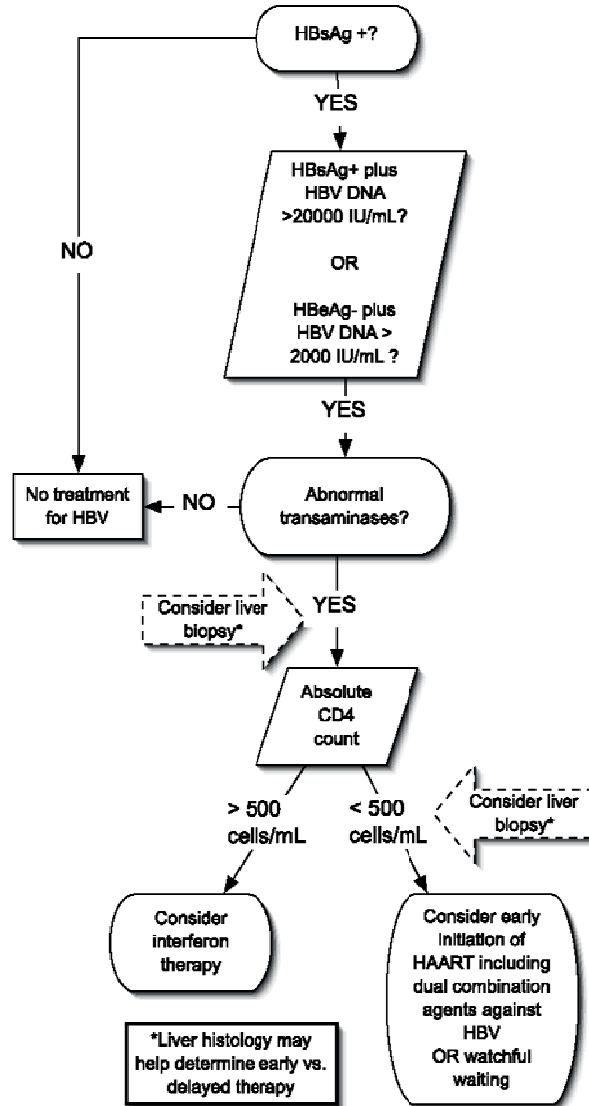
Screening Labs

- Initial Screening: anti-HCV (2nd or 3rd generation EIA)
- All anti-HCV(+) subjects: quantitative HCV RNA, HCV genotype
- If anti-HCV(+) and quantitative HCV RNA(-): qualitative and quantitative HCV RNA in 6 months

Additional Screening Labs/ Baseline Evaluations

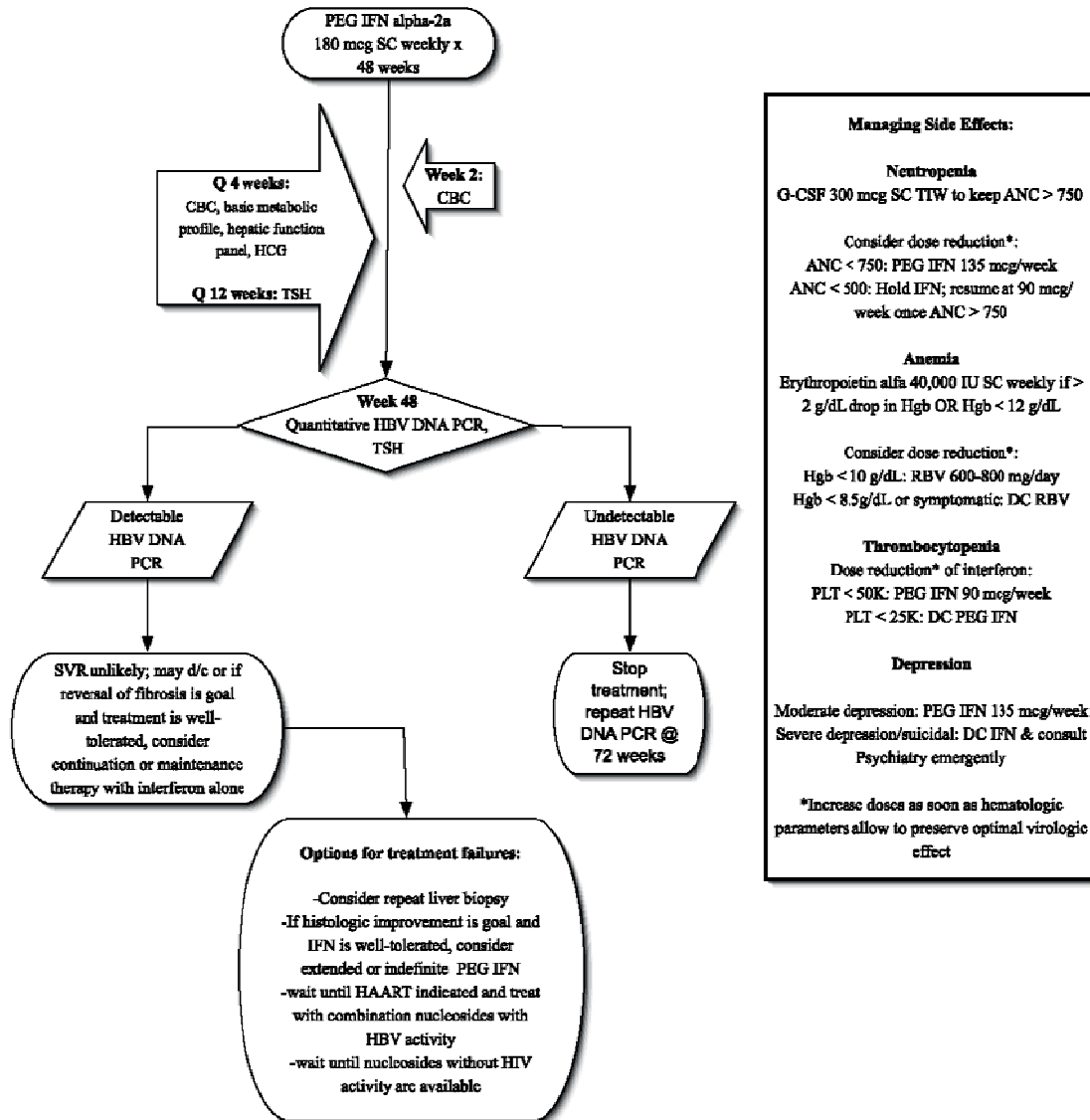
- Obtain CBC, BMP with hepatic function panel, PT/PTT, lipid profile, ferritin, iron, TSH, HIV ELISA/WB, ANA.
- Screen for hepatocellular carcinoma (HCC): AFP and liver imaging (ultrasound, CT, or MRI).
- Consider liver biopsy to grade and stage disease.

Decision tree for managing HBV in the HIV co-infected patient with a +HBsAg



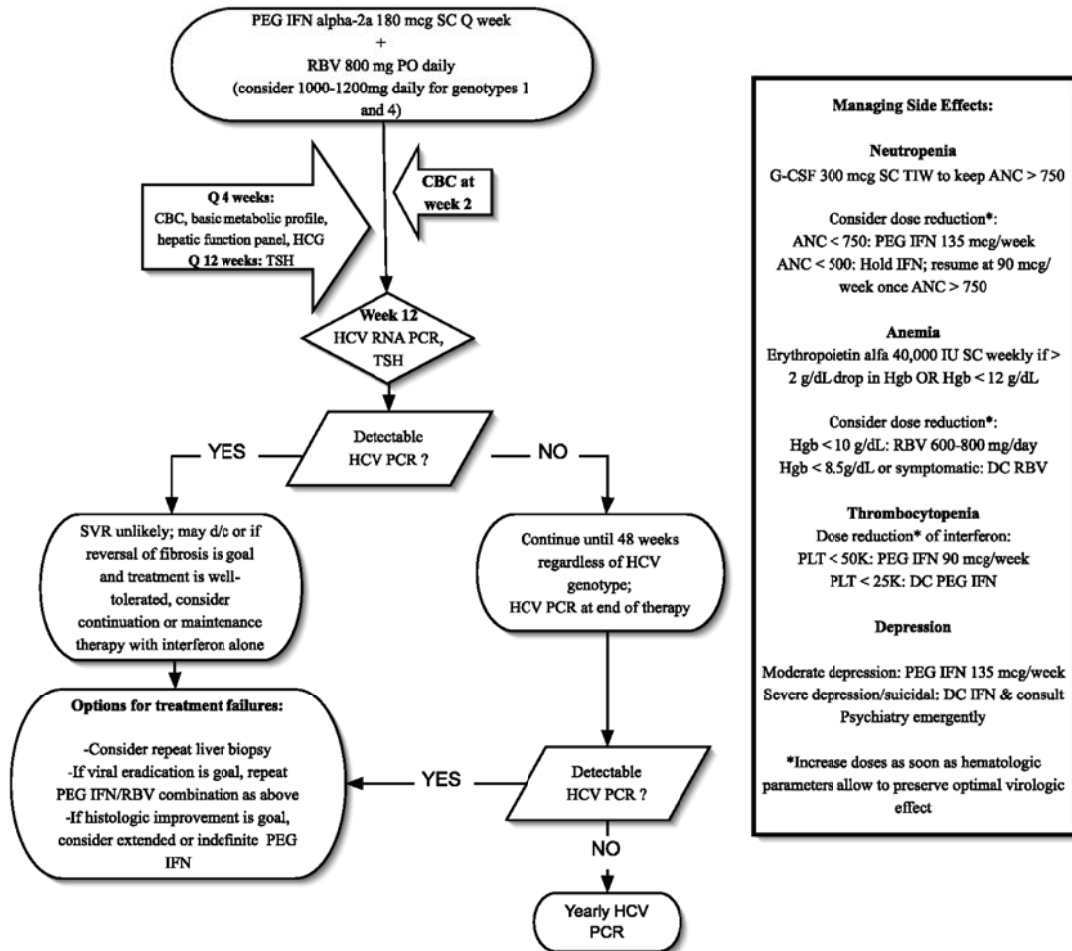
Sandra G. Gompf, MD, FACP
Chapter 16: Co-infection with Hepatitis B & C
HIV/AIDS Primary Care Guide
Florida/Caribbean AETC, March 2007

Interferon-based treatment algorithm for the HIV-HBV co-infected patient



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Algorithm for treatment of chronic HCV with interferon and ribavirin in HIV/HCV co-infection



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Additional Resources

- **Hepatitis Coinfection webpage** – AIDS Education and Training Centers:
<http://www.aidsetc.com/aidsetc?page=et-30-15&catid=hep&pid=1>
- **Clinician's Guide to HIV and Hepatitis** –Jed, S.L., Johnson, S.C., Bradley-Springer, L., et al. Mountain Plains AETC. January 2007.
<http://www.mpaetc.org/scripts/prodView.asp?idproduct=134>

CHRONIC HEPATITIS

Patient Information

- You have chronic hepatitis: B C Both
- Your hepatitis B viral load is _____
- Your hepatitis C viral load is _____
- Your hepatitis C genotype is: 1 2 3 4 5 6

Chronic hepatitis is an ongoing infection of the liver, the gland in the upper part of the right side of your abdomen. The liver acts as a place for storing nutrition (sugars), a filter for toxins, an aid to digestion of food, and a producer of factors to keep you from bleeding severely. When you have chronic hepatitis, some or all of these functions may be impaired. Chronic hepatitis can lead to cirrhosis (scarring of the liver), cancer of the liver, and even liver death.

Hepatitis B and C can be passed from one person to another by having unprotected sex, sharing needles, or from a mother to her child during pregnancy or at delivery. These viruses also used to be passed in blood transfusions; this rarely happens anymore since the blood supply is screened for them now. They can also be spread in other ways, such as getting a tattoo with a needle that has not been properly cleaned between uses.

Chronic hepatitis causes damage to your liver slowly over time, so you may feel fine even if your liver is being affected. Blood tests can be done to see if the chronic hepatitis is active in you but blood tests alone *cannot* tell you how much damage has been done to your liver. A liver biopsy may be needed to tell the amount of damage already done.

Ways *you* can protect yourself if you have chronic hepatitis

- **Do not drink alcohol, including beer and wine.**
- Avoid raw seafood, especially raw oysters.
- Do not use a lot of Tylenol or acetaminophen-containing medications for pain relief (less than 2 grams/day). Tylenol is filtered by the liver; if the liver is not working right, it can build up in the blood to levels that can further damage the liver.
- When you go to a salt water beach or swimming in the ocean, be careful not to get cut. Bacteria in salt water can get into your system and make you very sick; this is especially true for the beaches on the Gulf of Mexico. If you do get cut and have redness in the area or fever, go to your doctor or local emergency room and tell them you have chronic liver disease!
- If you have not yet been vaccinated for hepatitis A or B (if you do not have B), ask your doctor for this vaccine. Having more than one type of hepatitis can cause additional damage to your liver.
- If you have a lot of bleeding that is slow to stop, if you bruise very easily, or if you notice bloody or black stools, notify your doctor.

Managing Side Effects of Hepatitis C Therapy

Treatment for hepatitis C usually involves a combination of **interferon**, which is given by a shot under the skin, and **ribavirin**, which is taken by mouth.

It is important to take these medications exactly as prescribed by your healthcare provider. If you are not clear about how to take them, please contact your provider.

Hepatitis C medications often have side effects, and these may be severe. Common side effects include flu-like symptoms, fatigue, depression, irritability, anemia, nausea, muscle and joint pain, injection-site reactions, itchiness, and neuropathy. Ribavirin can cause birth defects; both men and women must avoid pregnancy during therapy and for 6 months after ribavirin has been discontinued.*

Your healthcare provider will monitor you for some of these side effects, but if you think you are getting side effects to your medicines, contact your provider promptly. You may need further evaluation or specific treatment.

* Use two methods of birth control at all times when you are taking ribavirin, and for at least six months afterwards.

To prevent or minimize many of the side effects:

- **DRINK** plenty of water and clear liquids. If possible, drink at least 8-10 glasses per day.
- **EAT** a balanced diet, and consider smaller, more frequent meals if appetite or nausea is a problem.
- **AVOID** alcohol, recreational drugs, caffeine, and large amounts of sugar.
- **REST** and try to get adequate sleep at night and take naps during the day, if needed.
- **EXERCISE** regularly, even if only for brief periods of time. This will actually increase your energy.
- **GET SUPPORT** from friends, family members, and support groups.
- **REMEMBER** that your hepatitis C treatment is temporary, and that you will feel much better after your treatment is completed.

The following suggestions may help you manage some common side effects of hepatitis C treatment.

Flu-like symptoms (fever, chills, achiness, etc.)

- Take your interferon before bedtime so you can sleep through the worst of the side effects.
- Take ibuprofen, naproxen, or acetaminophen before your injection to lessen these side effects. Check with your provider about whether these medications are appropriate for you; and about the proper doses. These medicines should **ONLY** be taken as instructed by your health care provider.
- Drink plenty of fluids except alcohol and caffeine, as above.

Nausea or poor appetite

- Try eating small, more frequent meals and have meals prepared in advance that can microwave.
- You may need an anti-nausea medicine or an appetite stimulant; discuss with your health care provider.

Fatigue (tiredness)

- Talk to your health care provider promptly if you are feeling fatigued. You may need evaluation for anemia, thyroid disease, or other medical problems.
- Establish a regular sleep and rest schedule. Take naps as needed and before activity.
- Try to sleep well at night.
- If you have trouble sleeping, try taking your ribavirin at least three hours before bed. If you continue to have trouble sleeping, inform your health care provider; you may need a medication to help you sleep.
- Prioritize your activities so that you are able to do the ones that are most important.
- Line up people to support you. Ask friends and family for help with chores or obligations that are burdensome.
- Exercise! This is very important for maintaining your health and well-being.
- Drink plenty of fluids, and avoid alcohol and caffeine, as above.

Depression

- Talk to your health care provider promptly if you are feeling depressed. There are very good treatments for depression, and you may benefit from antidepressant medication or psychotherapy. You also may need a medical work-up to look for other causes of depression.
- Consider a support group.
- Try to exercise regularly. Moderate exercise can help lift symptoms of depression.
- Drink plenty of fluids, and avoid alcohol and caffeine, as above.

Dry skin and itching

- Keep your skin hydrated: drink 8-12 glasses of water per day and use a mild moisturizer.
- Avoid soaps, lotions, skin products, and detergents that contain harsh chemicals or alcohols.
- Avoid hot baths and showers.
- Try oatmeal baths or bath products.
- You may need a steroid cream or an antihistamine; discuss these with your health care provider.

Hair loss

- There is no specific treatment for this. Your hair will grow back after you have finished your hepatitis C medications.

Resources

The Veterans Affairs National Hepatitis C Program: <http://www.hepatitis.va.gov/>

HCV Advocate: <http://www.hcvadvocate.org/>

The Hepatitis Workbook: A Guide to Living with Chronic Hepatitis B and C.

Produced by Schering Corporation, but contains useful information for patients. Available at no cost through patient support. <http://beincharge.com>