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HEPP REPORT

INFECTIOUS DISEASES IN CORRECTIONS

Aug./Sept. 2002 Vol. 5, Issue 8 & 9

HIV & HEPATITIS
EDUCATION
PRISON
PROJECT

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ABOUT HEPP

HEPP Report, a forum for correctional problem solving, targets correctional administrators and HIV/AIDS and hepatitis care providers including physicians, nurses, outreach workers, and case managers. Continuing Medical Education credits are provided by the Brown University Office of Continuing Medical Education to physicians who accurately respond to the questions on the last page of the newsletter.

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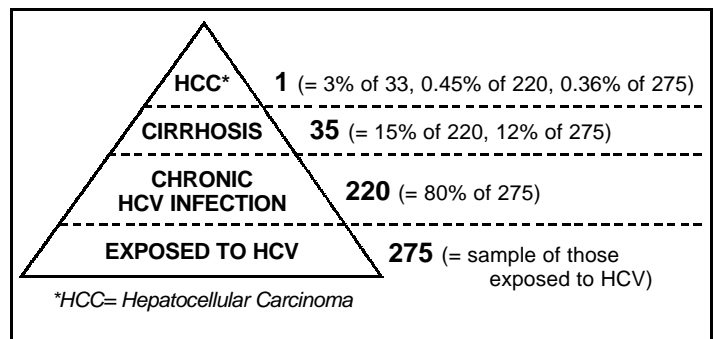
RECOMMENDATIONS FOR THOSE ON THE FRONTLINE AGAINST HEPATITIS C

Jules Levin*, Joseph Bick*, M.D., and Elizabeth Stubblefield*

NOTE: NIH Consensus Statements are prepared by a non-advocate, non-Federal panel of experts, based on (1) presentations by investigators working in areas relevant to the consensus questions during a 2-day public session; (2) questions and statements from conference attendees during open discussion periods that are part of the public session; and (3) closed deliberations by the panel during the remainder of the second day and morning of the third. The resulting statement is an independent report of the panel and is not a policy statement of the NIH or the Federal Government. The statement reflects the panel's assessment of medical knowledge available at the time the statement was written. Consensus statements are often updated as medical knowledge advances.

The management of Hepatitis C infection (HCV) was the subject of an expert "consensus panel" discussion at the National Institutes of Health this past June. From the discussions at the meeting, guidelines for testing, treating and preventing HCV were developed and are now posted on the internet (www.consensus.nih.gov). HCV prevention in prison is also the subject of a special issue of the *Morbidity and Mortality Weekly Report*, to be published later this year. Events at the consensus meeting and aspects of the two publications that concern correctional health providers are reviewed in this *HEPP Report*.

FIGURE 1 : Number of people with the given condition out of an original population of 275 exposed to hepatitis C (HCV).⁶



HCV IN JAILS AND PRISONS UNDERESTIMATED

HCV is the most common chronic blood borne infection in the United States.¹ The number of infected individuals is reaching "epidemic proportions," according to W. Ray Kim, M.D., of the Mayo Clinic, one of the experts invited to speak at the NIH Consensus conference.² Most of these infections are not new, and were acquired in previous years or decades due to transfusions, injection drug use or other high-risk behaviors. About 4 million Americans, or 1.8% of the US population, are estimated to have antibody to HCV, indicating ongoing or previous infection with the virus. At the NIH conference, Dr. Kim suggested that these data, based on NHANES³ surveys that excluded individuals from higher risk groups (drug addicts and prisoners), might underestimate the prevalence of HCV in the US population.²

The most significant threat HCV poses is chronic liver disease. Chronic liver disease, (if defined as consistently abnormal ALT values with a positive test for HCV) develops in at least 75% of those infected (see Figure 1). Liver failure from chronic HCV is the most common reasons for liver transplants in the United States.³

The prevalence of HCV infection among US prisoners is at least ten-fold higher than that in the general population.⁴ For women prisoners, who are often incarcerated for crimes related to sex and/or drugs, the rate of HCV is even higher than in men. Hispanics and non-Hispanic blacks have higher rates of HCV and HIV than do whites. The overrepresentation of persons of color in jails and prisons also contributes to the increased rate of HCV and HIV among inmates (see Figure 2). Among

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many HIV-infected cohorts, 30% have HCV, while among those infected with HIV by injection drug use, 60-90% are estimated to have HCV.⁵

As with many other blood-borne diseases, the true prevalence of HCV is difficult to estimate. HCV is usually asymptomatic for years, and often people are unaware of their infection or do not seek care. Furthermore, until 1999, death certificates did not have a separate code for HCV-related deaths. However, the number of people known to be infected with HCV is increasing. Among HIV-infected individuals, chronic liver disease is now the most common cause of death. Currently, it is estimated that the US spends \$1.6 billion on HCV hospitalizations per year. According to Dr. Kim, as more and more infections are diagnosed, these expenditures are likely to increase exponentially.²

WHAT CAN CORRECTIONAL HEALTH CARE PROVIDERS DO?

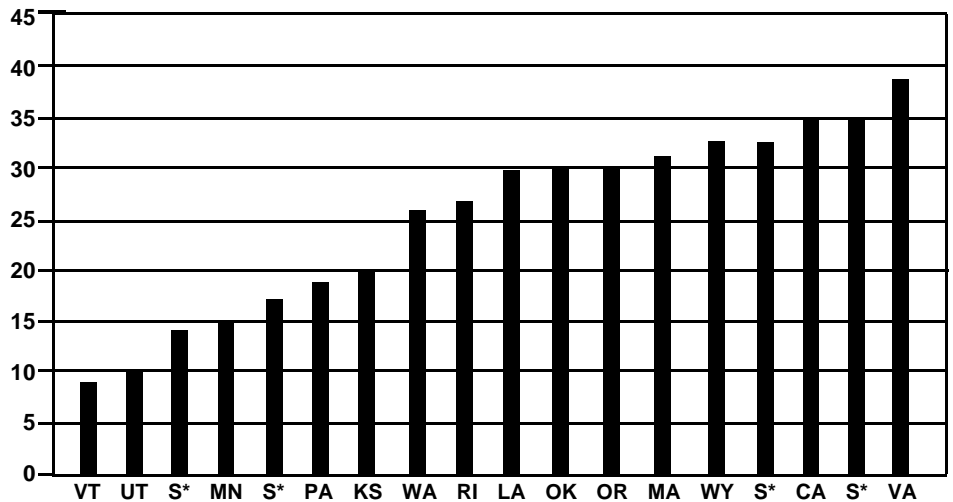
Identify

The epidemiology of HCV makes correctional institutions pivotal sites for US efforts to identify those who are infected with HCV. News from this year's Conference on Retroviruses and Opportunistic Infections (CROI) highlights the fact that most of those infected with HIV are unaware of their disease.⁸ Unfortunately, according to the experts at the NIH consensus panel, this is also true of HCV. Thus a simple but powerful first step is to provide ready access to HIV and HCV testing. All prisoners should be evaluated for HCV risk factors. Those with HCV risks and any other prisoner who requests testing should be offered it.

HCV is most readily diagnosed by the detection of antibody in serum. According to Jean-Michel Pawlotsky, M.D., one of the experts on the NIH consensus panel, current FDA-approved antibody tests for HCV are highly sensitive and specific (99%), reproducible, and inexpensive, which makes them suitable for use in screening at-risk populations. (Contrary to what was said at the NIH Conference, the CDC still recommends a confirmatory test, and for screening purposes, i.e., not medical management purposes, a RIBA is recommended). A negative HCV antibody (EIA) test is sufficient to exclude a diagnosis of chronic HCV infection in most immune-competent patients. Rarely, those who are on hemodialysis or who are otherwise immune-deficient may have a false negative EIA. Conversely, false positive results can be obtained in those with autoimmune

FIGURE 2: Percentage of inmates with HCV infection (HEPP Study, 2002)⁷

States participating in a HEPP phone survey earlier this year reported the following estimates of HCV prevalence. The data for each state is collected using different measures. (S = Suppressed)*



disorders. In these individuals, assays for HCV RNA are useful adjuncts.⁹

Educate

Once individuals know their HCV status, education about HCV enables them to understand their illness, better care for themselves, and prevent transmission to others. Patients should be advised that continued alcohol use by those with HCV infection can hasten the progression of liver disease. Providers should also discuss drug and alcohol addiction treatment and anti-HCV treatment options. Inmate-led peer education programs can be invaluable in fostering better understanding of HCV and HIV. HCV-infected patients who are not already immune should be vaccinated against hepatitis A and, if indicated because of other risk factors, hepatitis B.¹⁰

Prevent further transmission

The use of a harm reduction model helps patients prevent further transmission of HCV. The risk for transmission of blood borne pathogens is dramatically increased among IDUs who are not utilizing harm reduction techniques, making drug treatment and the availability of clean needles key components of prevention.¹

Evaluate for treatment: Who are the best candidates?

Those patients who are the best candidates for treatment are those with chronic HCV who lack significant contraindications (see Table 1) and are at the greatest risk for progression to cirrhosis (measurable HCV RNA, a liver biopsy with portal or bridging fibrosis and at least moderate inflammation and necrosis, and elevated ALT values). More data has accumulated demonstrating that those with HIV infection can be effectively treated for HCV. As a result, the NIH consensus panel recommended that HIV-infected people be considered for HCV treatment.

The 2002 panel also reversed the 1997 recommendations that excluded treatment for all active substance abusers. As reported at the meeting, recent experience has demonstrated the feasibility and effectiveness of treating HCV in some people who use injection drugs.¹² Since IDUs comprise one of the largest groups of HCV patients, successful treatment may lead to reduced transmission. Linking IDUs to drug-treatment programs enhances the management of HCV-infected IDUs. In some settings, HCV therapy has been successful even when the patients have not been completely abstinent from continued drug use or are on daily methadone.¹³

Patients with mild mental health problems may also be eligible for treatment, but should be closely monitored throughout the process as interferon (IFN) can exacerbate depression.¹³

Measure Viral Load

VL measurements can be used to confirm active infection, assess response to therapy, and evaluate end of treatment and sustained responses. Unlike HIV infection, HCV Viral load does not correlate with the severity of HCV infection. Viral load does correlate with the likelihood of a response to antiviral therapy. Rates of response to a course of IFN and ribavirin (RBV) are higher in patients with low levels of HCV RNA (usually defined as below 2 million copies per milliliter).

Monitor

Monitoring HCV RNA levels during the early phases of treatment may provide information on the likelihood of a response. A viral load reduction of 2 log or more at week 12 indicates a positive response to therapy, and treatment should be continued (see HEPPigram, page 6). If viral load has not been reduced by 2 log (90%) or more at

LETTER FROM THE EDITOR

Dear Colleagues:

As the summer comes to a close, we would like to highlight a few changes at HEPP. First, we have changed the name of our publication to HEPP Report. Our mission will continue to be to provide you updates on the management of infectious disease in corrections, with a particular focus on HIV and hepatitis. Second, Dr. Joseph Bick has agreed to serve with Dr. Anne De Groot as co-chief editor of the HEPP Report. Dr. Bick's decade of experience as a correctional infectious disease consultant will serve him well in his new role. Lastly, we are pleased to announce that Dr. Peter Piliero of the New York State Department of Corrections has joined us as an associate editor.

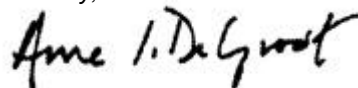
This month, we discuss the updated NIH guidelines for hepatitis C. HEPP Report members Anne De Groot, Joe Paris, Lou Tripoli and Lester Wright attended this important meeting, held in June in Washington DC. Jules Levin, founder and director of the National AIDS Treatment Advocacy Project (NATAP) who has an encyclopedic knowledge of the HIV/HCV co-infection literature, co-wrote the main article this month. Our advisors and editors participated actively in the editorial process. The article is written for and by correctional professionals with applications of the guidelines to the correctional setting firmly in mind.

It is important to note that the NIH panel did not address important issues such as "maintenance therapy" for persons who fail to achieve cure, nor was the panel clear about the duration of treatment for HIV/HCV co-infected persons who have genotype 2 or 3. Future updates of the guidelines may be clearer on this point.

After reviewing this issue, readers should be able to identify which patients are eligible for HCV treatment, list the most effective diagnostic tools for HCV treatment, quantify the severity of the HCV epidemic in prisons and jails, and suggest which patients are more likely to respond to HCV therapy.

Thank you for your continued support for HEPP!

Sincerely,



Anne De Groot, M.D.

Published monthly and distributed by fax, HEPP Report provides up-to-the-moment information on HIV and hepatitis treatment, efficient approaches to administering treatment in the correctional environment, national and international news related to HIV and hepatitis in prisons and jails, and changes in correctional care that impact HIV and hepatitis treatment.

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week 12, there is a low likelihood that a patient will achieve a sustained viral response, and discontinuation of therapy may be considered.¹⁴ Some patients, particularly those with HIV, may take longer to achieve a 2 log response. Furthermore, if a patient has advanced HCV, continuing therapy may be useful despite less than a 2 log reduction because a course of treatment that does not result in eradication of HCV may slow HCV disease progression.¹⁵

GENOTYPE

There are six known HCV genotypes. Patients with genotype 2 or 3 are two to three times more likely to achieve a sustained viral response to treatment than those with genotype 1. The duration of combination therapy with pegylated IFN who are not co-infected and do not have genotype 1 is usually 24 weeks, while co-infected patients and those with genotype 1 are usually treated for at least 48 weeks (See HEPPigram, page 6).

THE ROLE OF LIVER BIOPSY

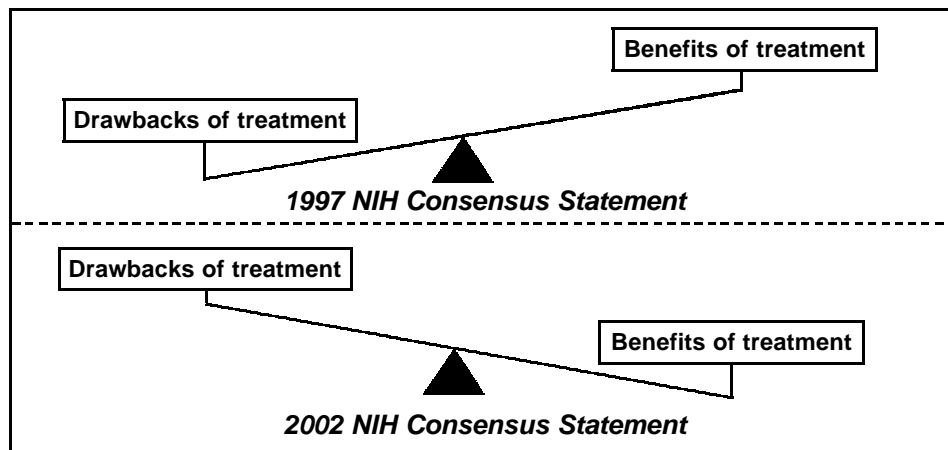
The NIH consensus panel emphasized the role of liver biopsy in the management of HCV. Biopsies grade the severity of disease and stage the degree of fibrosis and permanent architectural damage in a patient. Radiological testing such as ultrasound cannot indicate the stage of disease except in the setting of advanced cirrhosis. Measuring ALT also does not reliably assess the stage of liver disease, particularly in HIV-infected patients. While the majority of HCV patients with consistently normal ALT have early HCV disease, 22% may have more advanced disease.¹⁶ Because patients with genotypes 2 and 3 respond so well to treatment, there was some debate about the need for biopsy prior to treatment in those patients (See HEPPigram, page 6). In addition, among HIV-infected patients, a higher percentage of patients with normal ALT may have moderate or more severe liver disease. Therefore, some experts suggest that patients with consistently normal ALT be treated no differently than patients with consistently abnormal ALTs.¹⁶

In addition to more accurate staging of disease, biopsies also confirm the HCV diagnosis, exclude alternative diagnoses, predict responsiveness to treatment, and provide a baseline for future comparison.¹⁷ The biopsy can provide extremely useful information, but lack of access to liver biopsy should not exclude appropriately selected patients from having access to HCV treatment.

TREATMENT OF HEPATITIS C

The therapy of chronic hepatitis C has evolved steadily since alpha IFN was first approved for use in this disease more than

FIGURE 3: The Change in Balance: Treatment of HCV in an HIV-Coinfected Patient
A reversal from the recommendations in 1997, in 2002, the benefits of HCV treatment in HIV-coinfected patients appear to outweigh the drawbacks.



10 years ago. At the present time, the optimal regimen for most patients appears to be a 24- or 48-week course of the combination of pegylated IFN and RBV.

The development of pegylated IFN (peg IFN) and the use of peg IFN in combination with RBV (combination therapy) are important advancements in the treatment of HCV that were emphasized during the NIH conference (see HEPP News, April 2002). Two forms of peg IFN have been developed and studied in large clinical trials: peg IFN alfa-2a (Pegasys; Hoffman La Roche, Nutley, NJ) and peg IFN alfa-2b (Pegintron; Schering-Plough Corp., Kenilworth, NJ).

CURABLE?

Combination therapy leads to rapid improvements in serum ALT levels and disappearance of detectable HCV RNA (end of treatment response) in up to 70% of mono-infected patients. For patients with genotype 2 or 3, response rates in studies are 75-90%. For patients with genotype 1, response rates are 30-46%. Preliminary data from ongoing studies suggest that HIV-coinfected patients will have lower response rates. Success depends on several factors including genotype, viral load, and stage of disease. For patients who maintain negative HCV RNA for 24 weeks after stopping HCV therapy, results from several studies show 98% remain HCV RNA negative (sustained response). Small studies following patients for up to 11 years show well over 90% of those who achieve a sustained response remain HCV RNA negative. In some patients who were HCV RNA negative, HCV could no longer be found in the liver. Unlike the situation with HIV, the HCV virus cannot integrate into the host genome, and therefore eradication of the virus is possible. At the NIH consensus panel, Dr. Jay H. Hoofnagle pronounced HCV "curable".¹⁸ Indeed, since the last consensus panel on HCV convened in 1997, the availability of highly effective combination therapy that can eradicate HCV infection has lead many experts to consider

TABLE 1: Patients with the following conditions may face risks that outweigh the benefits of therapy.¹¹

- Ongoing substance abuse
- Severe depression or other psychiatric disorders
- Decompensated cirrhosis
- Autoimmune disease
- Older age
- Pregnancy
- Renal failure

treatment where previously they might not have treated. In order to evaluate the clinical outcomes and survival, however, studies of long-term follow-up for these patients and coinfectd patients is necessary.

SPECIAL CONSIDERATIONS FOR HIV/HCV CO-INFECTION

All HIV-infected persons should be screened for HCV. The 2002 NIH consensus panelists recommended that studies are needed to determine the best strategies for treating HCV and HIV co-infected patients. Co-infected patients may have an accelerated course of HCV disease. As a result, some clinicians believe that early treatment of HCV is indicated in those who are HIV infected. Thus far, studies of co-infected individuals have enrolled mainly patients with "stable" (usually defined as CD4 counts >300 and HIV viral loads <5000) HIV infection and well-compensated liver disease. Preliminary studies suggest that combination (IFN/RBV) therapy is more efficacious than IFN monotherapy in those who are co-infected.¹⁹

Small studies done several years ago reported that HCV and HIV-co-infected patients responded to therapy just as well as mono-infected patients.²⁰ More recently, better designed studies suggest the response rate in co-infected patients is likely to be lower than in those who are not HIV-infect-

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ed. This reduced response may be attributed to the impairment HIV causes to the immune system and/or higher therapy discontinuation rates due to drug side effects and toxicities. Although it has not yet been well researched, patients co-infected with HIV may require 48 weeks therapy or longer regardless of whether they have genotype 1 or 2. Speaking at the NIH Consensus Conference, Dr. David Thomas of Hopkins suggested that the "balance has shifted" in favor of treatment of HIV-infected patients, even though larger studies will be needed to determine the rate of progression of HCV in these patients, the duration of therapy that may be required and their overall response to treatment (See Figure 3). When asked by a Consensus Conference audience member what CD4 cutoff should be used to exclude patients from treatment, Dr. Thomas could not define one. He went on to say that good control of HIV infection was essential if HCV were to be treated, but otherwise he could see no contraindication to treatment of HIV-infected patients.²¹

An additional concern is that co-infected patients may experience more side effects and adverse events, such as anemia and leukopenia. These side effects can make adherence to therapy more challenging.

A high percentage of co-infected patients are African-Americans and greater than 90%

have genotype 1. Patients with genotype 1 have a lower rate of response to therapy. One study showed that African-Americans with genotype 1 experienced lower response rates than Caucasians with genotype 1, suggesting that factors other than genotype may also be responsible.²³ These factors have not been well defined, and merit further research.

Side effects

Side effects of therapy can include fatigue, irritability, emotional distress, weight loss, and depression. Adverse laboratory events can include anemia, leukopenia, and thrombocytopenia. More uncommonly, therapy can cause autoimmune disease (particularly thyroid disease), and suicidal ideation or attempts. For these reasons, close follow-up of patients on therapy is essential. Ideally, patients should be seen weekly for the first four weeks after initiation of therapy. After the first month, patients who are doing well can be seen less often i.e. every four weeks. It is important for prisoners to be able to inform the clinician of all side effects they experience so that effective interventions can be initiated. Support services are needed to guide patients through the process of starting and maintaining therapy.

OUTCOMES OF THERAPY

For those without cirrhosis, achieving a sustained response to therapy should prevent progression to decompensated liver disease or cancer. Experts believe that a sustained

response to therapy among people with cirrhosis should also prevent progression, but studies are still inconclusive.¹⁵ Several studies previously conducted provide evidence that IFN use in patients with cirrhosis and non-responders can slow or reverse disease progression.²⁴ These results indicate that patients with cirrhosis who achieve a sustained viral response have a good chance of stopping and perhaps reversing disease progression. Further study, however, is necessary.

CONCLUSION

At the NIH conference two significant statements were made: that HCV is now an epidemic in the US, and it is curable in many cases. The consensus panel also expanded its recommendations to treat HCV in populations that had previously not been considered eligible (HIV-infected patients and former or active drug addicts). Dosing schedules for the drugs described in the consensus statement are available in the March 2002 issue of HEPP News (www.hivcorrections.org). The panel also reinforced the need to identify infected patients, educate them about their disease, and initiate treatment in those most likely to respond. Studies are currently underway to better understand the impact and treatment of HIV and HCV co-infection. Clinicians working in correctional settings will continue to be on the front line of this epidemic for the foreseeable future.

Disclosures:

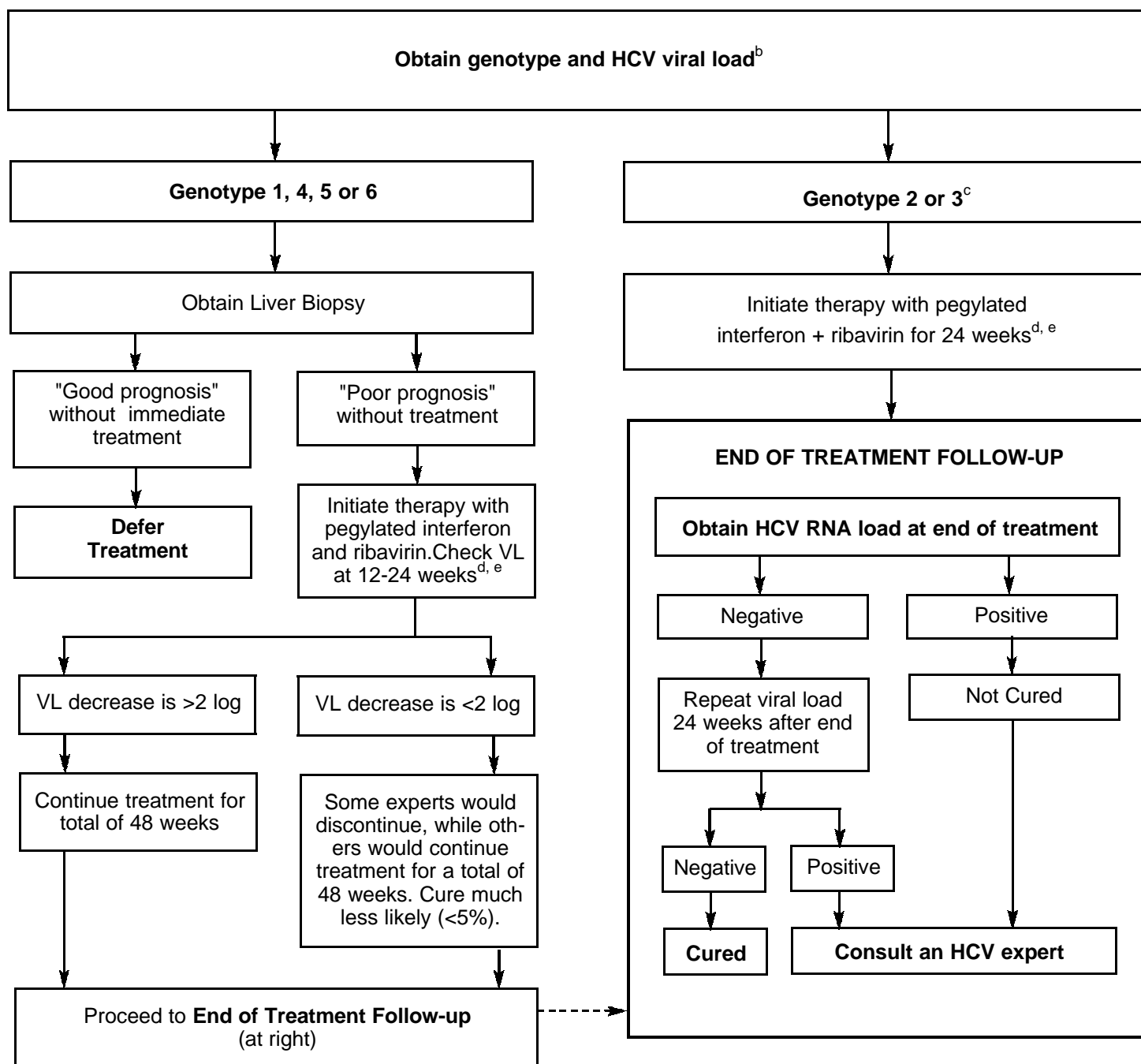
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HEPPIGRAM: One Approach To HCV Treatment

This flow chart is for patients with chronic HCV infection who are eligible for treatment. At present, the only difference for HIV and HCV co-infected patients with genotype 2 or 3 is that the duration of treatment is unclear. See Editor's Letter, page 3.



a- Pt has consistently abnormal ALT with positive HCV PCR (see main article, GENOTYPE, Page 4).

b- Some experts suggest a liver biopsy for all cases.

c- Biopsy can be considered at this point, but NIH guidelines may be silent.

d- See NIH Treatment Guidelines for specific treatment recommendations.

e- Current practice is not the same as FDA labeling.

SAVE THE DATES

6th Annual United States Conference on AIDS (USCA)

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INSIDE NEWS

CDC Data Shows High Incarceration Rate Among U.S. HIV/AIDS Population

At the XIV International AIDS Conference in Barcelona, Spain this summer, the CDC presented data from their investigation of how many people with HIV/AIDS in the United States have ever been incarcerated. Of the 2,639 patients questioned, 48% answered that they had been incarcerated at least once. Twelve percent of that group were initially diagnosed in a correctional facility. *Nakashima AK, Campsmith ML et al. XIV IAC, Barcelona Spain, 2002. Abstract WePeC6127.*

Updated Report on Health of Inmates Now Available

An updated Health Status of Soon-to-be-Released Inmates has just become available from the US Department of Justice Statistics. Compiled by experts in communicable diseases, chronic diseases, and mental health, the report assesses the health status of the 11.5 million Americans who cycle through correctional systems each year. Eighteen percent of people in the US with HCV cycle through corrections every year, along with 8% of those with HIV and 33% of those with active tuberculosis. Highlights were shared at the International AIDS Conference. The report available at www.ojp.usdoj.gov or www.ncchc.org/pubs_stbr.html

Price Freeze on AIDS Drugs

Abbott Laboratories, Pfizer, GlaxoSmithKline, Hoffmann-LaRoche, and Bristol-Myers Squibb have announced price freezes on their antiretroviral medications for as long as two years. Many of the price freezes apply to wholesale prices and/or costs to state ADAP programs. *New York Times, 6/21/02*

Number of Known Boston HCV Cases Triples in Four Years

A recent report from the Public Health Commission found that the number of hepatitis C

cases in Boston rose 300% from 1998 to 2001. Experts believe this increase reflects public health campaigns that have encouraged people to get tested, not a new outbreak of the virus. HCV has a long incubation period, meaning that people recently tested and diagnosed may have been infected for many years previously. *Boston Globe, 6/5/02*

Adefovir: Useful Against Hepatitis B/HIV Coinfection

A new drug that reduces serum levels of hepatitis B virus (HBV) is likely to be FDA-approved by the end of the year. Gilead's "Adefovir Dipivoxil" has shown activity against wild type and lamivudine-resistant HBV in patients co-infected with HIV. Adefovir allow easier administration; it can be taken once a day, with or without food, does not interact with hepatic cytochrome P450 and has not shown any clinically significant interactions with other drugs. Gilead offers an early access program to all patients, including inmates, who can provide informed consent. For more information call 1-800-GILEAD-5, or visit www.gilead.com. (*Benhamou Y et al. The Lancet, 358: 2001 Sept 1; Benhamou Y et al. poster 40774, 52nd AASLD, 2001.*)

Lamivudine is as Effective in HBV Treatment in Children as in Adults

An international study of children with chronic hepatitis B demonstrated that lamivudine creates a higher virologic response than placebo after 52 weeks of treatment. The study compared 191 children randomly assigned to receive lamivudine to 97 children who received placebo. Jonas et al. Clinical trial of lamivudine in children with chronic hepatitis B. *NEJM: 2002 May, 346(22):1706-1713.*

RESOURCES & WEBSITES

HCV

HCV Prison Support Project - For prisoners who have just been released from prison and need information on how to apply for their state's Medicaid, general information on hepatitis C and how to proceed in getting care and treatment. 1-866-HEPINFO (437-4636)

NIH Hepatitis C Consensus Statement

<http://consensus.nih.gov/>

HIV

AmfAR HIV/AIDS Treatment Directory:

NEW 2002 Summer Edition

Free (incl. shipping); large quantities available for clinic settings.

Contact Gretchen.Schmelz@amfar.org or call 212.806.1762

National AIDS Treatment and Advocacy Project

www.natap.org

Department of Health and Human Services

www.dhhs.gov

XIV International AIDS Conference

<http://www.aids2002.com>

CORRECTIONS

New Bureau of Justice Statistics Report:

Prison and Jail Inmates at Midyear 2001

<http://www.ojp.usdoj.gov/bjs/pub/pdf/pjim01.pdf>

Correctional Health Care: Guidelines for the Management of an Adequate Delivery System, 2001 Update

<http://www.nicic.org/pubs/2001/017521.htm>

Three Part Report: "Corrections, Inc."

This American Radio Works report explores various aspects of corrections, and can be heard or read at <http://www.americanradioworks.org/features/corrections/index.html>

SELF-ASSESSMENT TEST FOR CONTINUING MEDICAL EDUCATION CREDIT

Brown Medical School designates this educational activity for 1 hour in category 1 credit toward the AMA Physician's Recognition Award. To be eligible for CME credit, answer the questions below by circling the letter next to the correct answer to each of the questions. A minimum of 70% of the questions must be answered correctly. This activity is eligible for CME credit through March 31, 2003. The estimated time for completion of this activity is one hour and there is no fee for participation.

1. The most accurate gauge of the activity of a patient's liver disease is:

- a) a liver biopsy
- b) quantitative HCV PCR
- c) measuring ALT
- d) measuring viral load
- e) HCV antibody (EIA) test

2. Which of the following HCV-infected individuals might be candidates for HCV treatment?

- a) Patients with HIV infection
- b) Active substance abusers
- c) Patients with mild mental health problems
- d) All of the above
- e) None of the above

3. What is the best predictor of the potential for HCV "cure"?

- a) HCV viral load has decreased by more than 2 log after 24 weeks of treatment.
- b) HCV viral load has decreased by more than 2 log after 48 weeks of treatment.
- c) HCV viral is negative 24 weeks after the end of treatment.
- d) HCV RNA is negative after 24 weeks of treatment.
- e) None of the above; there is no cure for HCV.

4. According to a recent CDC study, what proportion of HIV/AIDS patients have ever been incarcerated?

- a) 12%
- b) 28%
- c) 39%
- d) 48%
- e) 63%

5. Approximately what proportion of those who become infected with HCV will develop chronic liver disease?

- a) 12-15%
- b) 35-45%
- c) 50%
- d) 75-80%
- e) 90-95%

6. Patients with genotype 2 or 3 are two to three times more likely to achieve a sustained viral response to treatment than those with genotype 1.

- a) True
- b) False

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	educational value					clarity				
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Inside News	5	4	3	2	1	5	4	3	2	1
Save the Dates	5	4	3	2	1	5	4	3	2	1

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