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HIV & Hepatitis Education Prison Project

HEPP NEWS

HIV & HEPATITIS EDUCATION PRISON PROJECT

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Sponsored by the Brown Medical School Office of Continuing Medical Education and the Brown University AIDS Program.

ABOUT HEPP

HEPP News, a forum for correctional problem solving, targets correctional administrators and HIV/AIDS and hepatitis care providers including physicians, nurses, outreach workers, and case managers. Published monthly and distributed by fax, HEPP News 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. 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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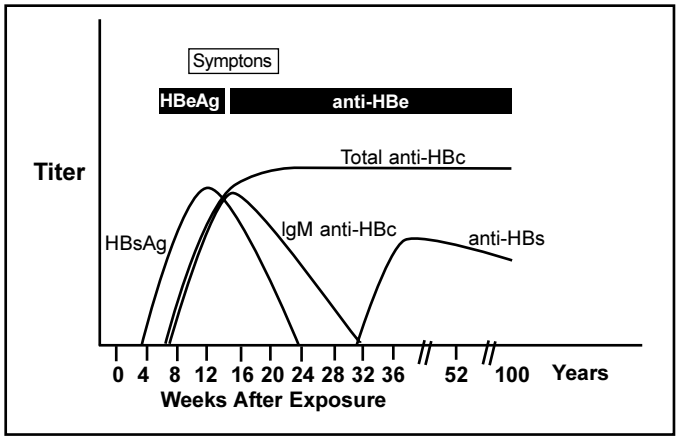
Hepatitis B Virus: Transmission, Prevention, Treatment and HIV Co-Infection

David Paar, M.D.*, *Associate Professor of Medicine, Director, HIV Care/TDCJ Correctional Managed Care*

Hepatitis B Virus (HBV) infection is very common with over 350 million chronically infected people worldwide including 1.25 million in the United States. The incidence of acute HBV infection in the U.S. has declined from 450,000 new infections per year in the 1980s to 80,000 in 1999. Vaccination against HBV, which has been available since 1982, is primarily responsible for this decline. Twenty to 80 % of U. S. inmates have past or active HBV infection, and 0.8 – 1.4 % of inmates acquire HBV while in prison (1, 2, 3).

Figure 1. Acute Hepatitis B Virus Infection with Recovery



HBV TRANSMISSION

High rates of HBV infection occur in people who have multiple sex partners, people who have percutaneous blood exposures (those who share injecting drug equipment and patients on hemodialysis) and health care or public safety workers who have frequent exposure to contaminated blood or other infectious fluids. In the correctional environment, tattooing with contaminated needles may be associated with HBV acquisition. Correctional officers may also be at increased risk of HBV infection because of exposure to inmates' blood and other body fluids during the course of their work. Household contacts of those with acute or chronic HBV infection and infants of mothers with chronic HBV infection are also at risk for acquiring HBV. In prisons, cellmates are analogous to household contacts. Transfusion as a cause of acute Hepatitis B (and Hepatitis C) has decreased dramatically in the past two decades since screening has become increasingly sensitive and more cost-effective. Since HIV and HBV have similar modes of transmission, coinfection is quite common.

ACUTE HEPATITIS B INFECTION

The clinical, serologic, and immunologic responses following infection with HBV infection have been well-described. Only 25 - 50 % of cases of acute HBV infection are symptomatic; the remainder are asymptomatic or are associated with inconsequential symptoms. Following an incubation period that varies from one week to six months, symptoms of the pre-icteric phase include malaise, weakness, anorexia, nausea, vomiting, and right upper quadrant pain. Oddly, these symptoms begin to abate during the icteric phase (jaundice) that persists for approximately three weeks. The hepatic transaminases peak, and then begin to decline during this time period. During the convalescent phase, which may last for up to six months, symptoms completely resolve (4).

Following exposure to HBV, a well-defined immunologic response results in resolution of infection and protective immunity. The first serologic marker of HBV infection to appear is Hepatitis B surface antigen (HBsAg), a protein on the surface of the virus. This antigen usually persists in serum throughout the period of clinical illness, and is commonly used to diagnose acute HBV infection. During convalescence, the disappearance of HBsAg and the appearance of anti-HBsAg (HBsAb) mark resolution of the acute infection. In

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WHAT'S INSIDE

Hepatitis B...

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acute HBV infection, resolution occurs in six months or less. In addition, there are other serologic and immunologic markers of acute HBV infection. Hepatitis B core antibody (anti-HBc), an antibody directed against the nucleocapsid of HBV generally appears at approximately the same time as HBsAb. HBc IgM develops initially and is eventually replaced by HBc IgG. In the minority of cases of acute HBV infection that come to clinical attention, HBsAb develops prior to the icteric phase. Since HBsAg disappears when HBsAb develops, HBsAg cannot be used to make the diagnosis of acute HBV infection in these rare instances. Instead, HBc IgM must be used to confirm the diagnosis. Another viral protein, Hepatitis B e antigen (HBeAg) and its corresponding antibody (HBeAb) follow a similar course to HBsAg and HBsAb, but these markers are rarely used for diagnosis of acute HBV infections. Seroconversion of HBeAg to HBeAb is associated with a decline in viral replication and disease severity (4). Figure 1 summarizes the serologic and immunologic responses encountered in acute HBV infection.

Chronic HBV Infection

In approximately 10 % of new infections, HBsAg persists in the serum for greater than six months, and chronic HBV infection is established. Individuals with persistent HBsAg are often called chronic carriers. Prior infection with HIV increases the likelihood that chronic HBV infection will occur.

The course of chronic HBV infection is characterized by the persistence of HbsAg in the serum and the failure to develop HBsAb, which provides protective immunity. In chronic HBV infection, the persistence of HBeAg (and failure to develop HBeAb) is associated with greater viral replication, higher HBV DNA in the serum, and more severe disease.

In the liver, chronic HBV infection causes inflammation, hepatic cell necrosis, and cirrhosis in approximately 50% of those infected. Hepatic failure and/or hepatocellular carcinoma occur in a significant number of patients. Chronic HBV infection is characterized by periods of disease activity and periods of disease quiesence. Serum transaminase levels increase with increased disease activity and may decrease to within normal limits during periods of disease quiesence. Serum quantitative HBV DNA levels also vary with disease activity. Clinically, symptoms may wax and wane with disease activity and may include fatigue, right upper quadrant discomfort, jaundice, and mild fever. Some patients are asymptomatic (4). Figure 2 summarizes the serologic and immunologic course of chronic HBV infection.

Figure 2. Progression to Chronic Hepatitis B Virus Infection

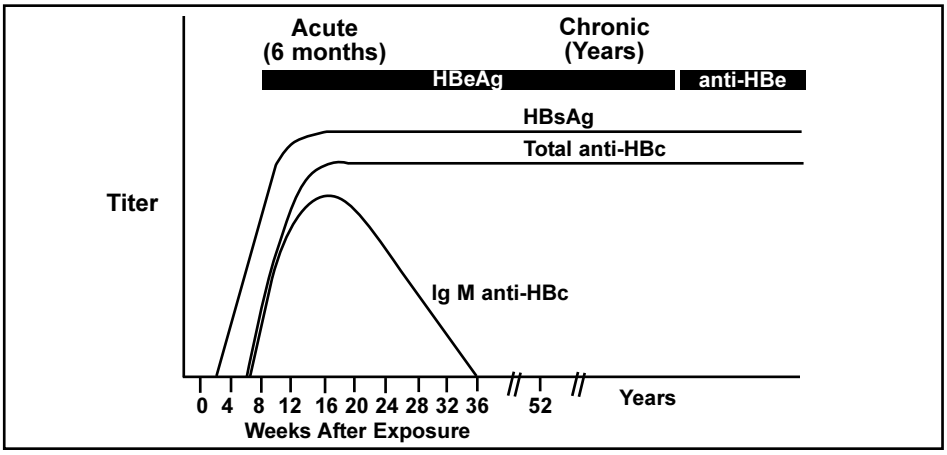

Figure 3. Guide to postexposure immunoprophylaxis with HBIG and HBV Vaccine

Type of Exposure	Post Exposure Prophylaxis
Perinatal	Vaccination + HBIG
Sexual – acute infection	HBIG +/- vaccination
Sexual – chronic carrier	Vaccination
Household contact – chronic carrier	Vaccination
Household contact – acute case	None unless known exposure
Household contact – acute case, known exposure	HBIG +/- vaccine
Infant (< 12 months) – acute case in primary caregiver	HBIG + vaccination
Inadvertant percutaneous/permucosal	Vaccination +/- HBIG

Treatment of HBV Infection

There is no specific therapy for acute viral hepatitis. Supportive therapy including intravenous fluids, antiemetics, mild analgesia, and antipyretics may be necessary in some cases. It is prudent to stop potentially hepatotoxic medications, including antiretroviral drugs, until transaminase levels approach normal values. Acute fulminant hepatitis and death occur in 0.5 – 1 % of cases of acute HBV infection.

Treatment and monitoring of patients with chronic HBV infection should be carried out by providers who are experienced in managing chronic HBV. Prior to treatment, liver biopsy is generally performed. Patients with decompensated liver failure or severe cirrhosis should not be treated for chronic HBV infection because treatment in these cases may actually lead to hepatic failure. Side effects are commonly encountered during treatment.

Interferon alpha 2b was the first drug approved by the United States Food and Drug Administration (U.S.F.D.A.) for the treatment of chronic HBV infection. The recommended treatment course is 5 million units injected subcutaneously daily or 10 million units injected subcutaneously three times per week for 16 weeks. Approximately 40 % of those receiving this treatment will have a successful outcome, which is defined as seroconversion of HBeAg (i.e., loss of e antigen and acquisition of HBeAb). It appears that treatment with interferon reduces the occurrence of cirrhosis, hepatic failure, and hepatocellular carcinoma. Co-infection with HIV is a predictor of poor response to interferon treatment.

Lamivudine (Epivir-HBV tablets or oral solution) has also been approved by the U.S.F.D.A. for the treatment of chronic HBV infection. The recommended dosage is 100 mg qd. The optimal duration of treatment is unclear, although most studies have involved one year of treatment. Approximately 15 % of patients treated with lamivudine have seroconversion of HBeAg. HBV DNA disappears during treatment, but usually becomes detectable again when treatment is stopped. ALT also decreases during treatment, but may rebound to two or three times the baseline value after treatment is stopped. Lamivudine-resistant HBV have emerged during treatment with lamivudine. It is unclear whether patients have a decrease in clinical endpoints such as cirrhosis, liver failure, and hepatocellular carcinoma following treatment with lamivudine.

Hepatic transplantation is an option for patients with end-stage liver disease secondary to chronic HBV infection.

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Letter from the Editor

Dear Colleagues,

As this edition of HEPP News went to press, we were encouraged by the news that the United Nations General Assembly has adopted a "Declaration of Commitment on HIV/AIDS". Although significant concessions were made in the drafting of this document, this does mark the first time that the General Assembly has convened solely to confront an infectious disease. This declaration sets (non-binding) time frames within which member nations are to expand access to HIV testing, prevention tools such as male and female condoms, disposable syringes, prenatal care, and perinatal measures to decrease vertical transmission of HIV. In addition, the declaration calls for the development of improved health care delivery systems, access to reduced cost medications, measures to promote gender equality and to protect those living with HIV/AIDS, and funding for low and middle income countries to accomplish these goals.

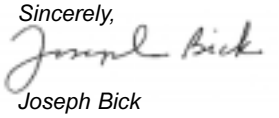
Although we are now twenty years into the HIV epidemic, it is hoped that the increased spotlight on this issue brought about by the United Nations declaration will mark a turning point in the fight against AIDS and help to control the explosive growth of HIV worldwide.

In this issue, HEPP News senior advisor David Paar focuses on the diagnosis, treatment, and prevention of Hepatitis B. By vaccinating our patients and colleagues, we in correctional health have the opportunity to prevent cancer, cirrhosis, and further transmission of this potentially devastating virus. Dr. Paar also provides an update on the Texas Department of Corrections' four years of experience with telemedicine. This month's HEPPigram provides an algorithm for the management of abnormal liver function tests, while Dr. Nick Capozzoli draws upon his experience as a correctional neurologist to review peripheral neuropathy.

After reviewing this issue, readers should know more about the management of Hepatitis B, be able to discuss the use of telemedicine in the delivery of HIV care within corrections, and have a better understanding of the diagnosis and management of peripheral neuropathy.

This month, we welcome Rebecca Nerenberg as the new managing editor for HEPP News. As always, we encourage your suggestions for future HEPP News topics!

Sincerely,



Joseph Bick

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Hepatitis B...

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PREVENTING HBV INFECTION

Avoiding contact with contaminated blood by using universal precautions is the only way to be 100% protected against HBV infection. However, it has been shown that immunization with recombinant HBV vaccine is an effective means of preventing infection. The Immunization Practices Advisory Committee (ACIP) of the Centers for Disease Control and Prevention recommends that all newborns, children, and adolescents be immunized to help eliminate HBV in the United States. Adults in high risk groups should be vaccinated but vaccination of all adults is not recommended at this time. In addition, older adults are at lower risk. One hundred ten other countries have a similar policy.

When vaccination is required, Recombivax HB and Engerix-B are two preparations that are available in the United States. The most common vaccination schedule is three intramuscular injections with the second and third doses being administered one and six months after the first; Engerix-B has also been licensed for a series of four injections given at 0, 1, 2, and 12 months (2).

When an exposure to HBV occurs in a susceptible individual, postexposure prophylaxis with Hepatitis B Immune Globulin (HBIG) and/or vaccination is recommended in most cases. Figure 3 is a guide to postexposure prophylaxis (2). Available Hepatitis vaccines are presented in figure 4.

Figure 4. Hepatitis Vaccines

Hepatitis A (HAV) Vaccines	Hepatitis B (HBV) Vaccines
■ Two HAV vaccines available perform equally well; both are based on an inactivated virus ■ Two doses are recommended, the second dose given 6-12 months after the first ■ Havrix: manufactured by Glaxo Smith Kline ■ VAQTA: manufactured by Merck, there is a pediatric version available for use up to 18 years of age ■ Twinrix: a combination HAV and HBV vaccine consisting of inactivated HAV and genetically derived HBsAg is currently undergoing trials	■ There are three HBV vaccines available; all are recombinant (genetically engineered) HBsAg vaccines ■ The vaccine schedule involves three intramuscular injections at 0, 1, and 6 months. ■ Engerix-B: manufactured by Glaxo Smith Kline ■ Recombivax-HB: manufactured by Merck ■ Comvax: manufactued by Merck, combination Haemophilus B conjugate and HBV vaccine

http://www.who.int/vaccines/intermediate/hepatitisa.htm
http://www.cdc.gov/ncidod/diseases/hepatitis/a/index.htm
http://www.who.int/vaccines/intermediate/hepatitisb.htm

HBV AND HIV COINFECTION

HIV and HBV interact when they occur in the same host, as previously noted (5,6). Like any other infection that occurs in HIV positive individuals, HBV infection activates the immune system leading to proliferation of CD4 cells which enhances HIV replication and increased plasma HIV RNA (viral load). In addition to this indirect effect on HIV replication, HBV proteins directly stimulate HIV replication. Theoretically, this results in more rapid HIV disease progression if the increase in HIV replication is sustained for a significant length of time. However, the literature does not consistently support the presumption that HIV progression is accelerated by concomitant HBV infection. It does appear however that HIV infection may accelerate the progression to hepatic failure and hepatic failure-related deaths in patients with chronic HBV infection (6).

In coinfected patients, most published reports indicate that serum HBV DNA is higher, serum alanine aminotransferase levels (ALT) are lower, and liver inflammation and cirrhosis are less than in patients with HBV alone. This is not an unexpected finding since cell-mediated-immunity (CMI), the primary factor in eliminating HBV from infected hepatocytes, is impaired by HIV infection. In studies that demonstrated the efficacy of interferon-alpha 2b for chronic HBV infection, HIV negative participants with high serum HBV levels, low serum ALT levels, and mild histopathologic scores on liver biopsy were less likely to respond to interferon treatment for chronic HBV infection than participants who had lower HBV DNA levels, higher ALT levels, and more severe inflammation on liver biopsy. Given this fact, it is not surprising that patients with chronic HBV and HIV coinfection are less likely to respond to interferon treatment for chronic HBV infection. Patients with chronic HBV and HIV are more likely to have clinically significant hepatotoxicity when placed on antiretroviral agents in general and may have increased incidence and severity of indinavir-associated hyperbilirubinemia (7).

When lamivudine is included in an antiretroviral regimen in patients with HIV and HBV coinfection, HBV viral replication is often reduced to nondetectable for the duration of lamivudine treatment. Whether this finding is associated with a more favorable hepatic outcome is unclear at the present time.

CORRECTIONAL HEPATITIS

The Centers for Disease Control (CDC), convened a meeting this Spring on Hepatitis in correctional settings that was attended by more than 100 federal and state correctional healthcare professionals. Representatives of correctional organizations (ACA, NCCHC) and representatives from federal agencies such as the OSHA and NIOSH also attended the meeting. CDC speakers discussed the need to expand HBV and HCV interventions, including screening, education, vaccination, and treatment of chronic Hepatitis in correctional settings. Guidelines for HCV and HBV management will be issued by the CDC as a supplement to the MMWR in the fall. While sources of funding for increased Hepatitis interventions in corrections were not specifically addressed, participants discussed promoting correctional settings as outposts for public health activities may ultimately lead to increased financial support from federal and state sources for correctional treatment initiatives.

**Speaker's Bureau: Roche Pharmaceuticals*

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SPOTLIGHT: Telemedicine in Clinical Practice

An Update From The Texas Department of Criminal Justice (TDCJ)

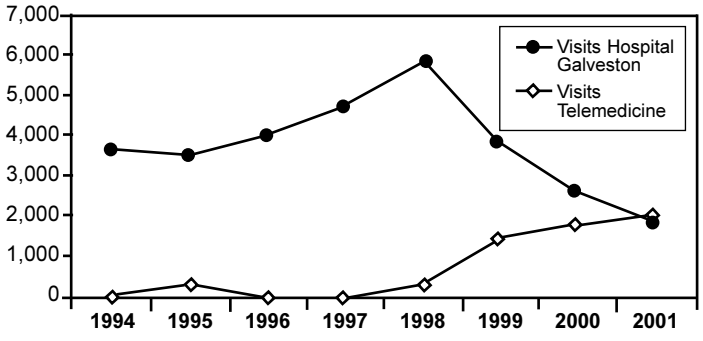
by David Paar, *Associate Professor of Medicine, Director, HIV Care/TDCJ Correctional Managed Care*

Telemedicine was introduced in the U.S. in the late 1950s using the limited technology of the time, and despite enormous technological advances that have made remote real-time audiovisual communication, examination, and robotically controlled surgical procedures possible, the practical application of telemedicine remains limited. Provider acceptance remains a significant factor in the limited use of telemedicine, which is a particular concern for HIV-treating physicians since a satisfactory/trusting patient/provider relationship has been identified as one of the most significant factors in predicting adherence to antiretroviral therapy (1). In prisons in particular, where there are so many other potential barriers to effective HIV care, introducing a new and untried technology may seem particularly imprudent to providers.

Since nonadherence is the primary reason for antiretroviral failure and the development of viral resistance (and cross-resistance) (1) to the growing, but still limited number of antiretroviral agents, it is imperative that the effectiveness of new treatment modalities be questioned. Unfortunately, clinically significant medical outcome studies on the effectiveness of telemedicine in delivering HIV care have not been reported. Additional concerns include the rapid obsolesence of telemedicine equipment, and some providers have had difficulty furnishing complete paper record copies to telemedicine receiving sites. However, implementation of electronic health records is on the rise and should circumvent the latter issue. Another significant factor may be the substantial cost of T-1 lines, even if in fractional use. Recent dissemination of complementary, lower cost technologies may decrease telemedicine costs. Some published reports have demonstrated that telemedicine has reduced correctional health care costs, which is attributed to a reduction in security and other travel-associated costs incurred when incarcerated patients are transported from remote sites to specialists (2).

In late 1997, TDCJ Correctional Managed Care developed and implemented a telemedicine program aimed at providing specialty care from a site on the The University of Texas Medical Branch at Galveston (UTMB) campus to patients incarcerated in over 90 prison units in eastern Texas. For HIV care, as well as other specialty care, this was a major shift in health care delivery since HIV positive offenders had always been transported to Hospital Galveston (HG) for HIV care and participation in clinical trials at UTMB.

FIGURE 1. Clinic Visits



Despite the fact that a busy eight hour/week telemedicine clinic with an average census of 35 – 40 patients per session has been established, an onsite HG HIV Clinic has been maintained to deliver health care to patients for whom telemedicine has been deemed inadequate. It is the clinical judgment of the telemedicine provider to determine whether telemedicine is inadequate. There are no pre-established criteria. The usual reasons for requesting an onsite visit rather than a telemedicine follow up are that the provider does not feel that (s)he is "connecting" with the patient, there is a physical exam finding that cannot be evaluated using telemedicine, or the patient's presentation is too complicated and needs extra attention in an onsite visit. Failure for a patient to achieve a nondetectable virus load is not a reason for an onsite visit as long as the provider feels that (s)he is adequately communicating with the patient and the patient does not have a physical exam finding that requires a hands-on exam. Additionally, UTMB's AIDS Care and Clinical Research Program maintains a clinical trials program for HIV+ prisoners, and those who wish to be screened and followed on clinical trials must travel to Galveston for initial screening and study-related follow up. The introduction of telemedicine provided an opportunity to compare telemedicine consultation with on-site (HG) consultation in the HIV care program, and to determine whether HIV care (both telemedicine and HG on-site care) was comparable to local community standards. This study was carried out by conducting a chart review.

FIGURE 2. Results of Randomly Selected Chart Review to Internal Audit Purposes

	Unincarcerated HIV+ Patients	TDCJ HIV+ Patients		
Clinic	***Community***	***Telemedicine***	***HG***	***HG Research***
# appointments	964	1587	1068	296
# charts reviewed	75	84	72	63
% receiving ART	90 %	83 %	92 %	97 %
% non-detectable VL*	49 %	60 %	42 %	76 %

**Results compared with one way ANOVA and binomial confidence limits*
ART – antiretroviral therapy
VL – virus load (either <50 or < 400 depending on which determination was most recently performed)
HG = Hospital Galveston
HG Research = Clinial trial study group at HG

As part of the assessment, we asked the question, is there a difference in the proportion of patients with a nondetectable virus load seen in the community clinic staffed by the same providers who staff the TDCJ HIV clinics. A random sample of charts of patients seen between September 2000 and March 2001 was selected from the Community Clinic (unincarcerated patients), TDCJ Telemedicine Clinic, TDCJ HG Clinic (TDCJ patients for whom telemedicine has been deemed inadequate), and TDCJ Research Clinic (HG clinic for incarcerated patients participating in clinical trials) and were reviewed for pertinent clinical information including the proportion of patients receiving antiretroviral treatment and most recent virus load determination. Since incarcerated patients may attend any of the three TDCJ clinics depending on clinical circumstances or clinical trial participation, charts were included for review only if the last three visits were conducted in the same clinic, or if there were only two documented visits, both must have occurred in the same clinic (See Figure 2 above).

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Spotlight...

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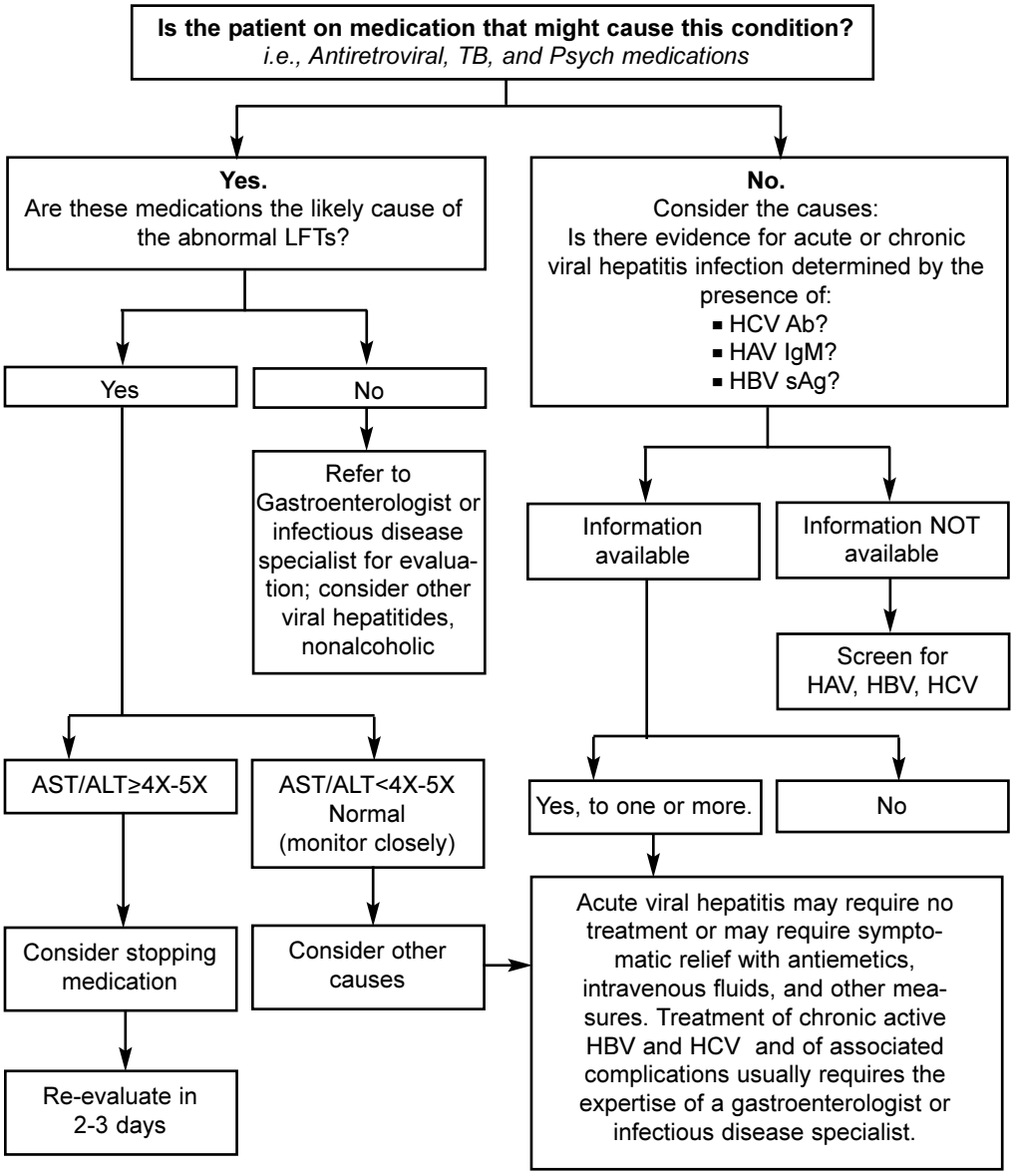
Most patients were seen multiple times during the six-month period covering this chart review. Therefore, the approximate number of patients seen in each clinic can be determined by dividing the number of appointments by three. The number of charts reviewed represents a 15 – 20% sample of the total number of patients seen in each clinic.

A one way analysis of variation (ANOVA) and binomial confidence limits analyses were performed in order to analyze the viral load response data. The results showed that a significant difference cannot be detected between the viral load responses in Group 1 (Community), Group 2 (Telemedicine), Group 3 (Hospital Galveston), and Group 4 (HG Research). Although there was a trend towards a significant difference in the HG Research Group, this reached borderline significance in the binomial confidence limits analysis only. These results are limited.

This chart review was not a scientifically designed study; it was done as part of an internal audit program to determine how to improve HIV care in the TDCJ. Patients were not matched for disease stage, sex, race, antiretroviral history, or other factors, which might influence viral load response, but the samples were randomly selected.

The next step is to conduct an appropriately powered, prospectively-designed trial that considers variables that determine the overall effectiveness of HIV health care delivery.

HEPPigram: Elevated Liver Function Test



Yet, some preliminary conclusions can be drawn. First, this information agrees with other reports (3, 4) indicating that while approximately 80% of clinical trial participants (HG Research) have a reduction in virus load to below the levels of detection, the responses in clinical practice are more variable. This finding is expected since relatively well patients who are less likely to have drug-resistant viruses and who have been selected for their ability to adhere to medical treatment should have the best response to investigational antiretroviral regimens. Second, the viral load responses of patients seen by ACCRP HIV Specialists are similar whether the patients are seen by telemedicine or in traditional face-to-face encounters. These preliminary results are very encouraging. We interpret the results to reflect our experience that telemedicine can result in the type of patient/provider relationship that translates into adherence and reduction in viral load to nondetectable levels in a select group of patients.

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HIV 101

Diagnosis of Neoropathy in HIV+ Prison Inmates, *A Primer for Correctional Physicians*

Contributed by Nicholas J. Capozzoli, MD, DABPN*, *Physician and Surgeon in the California Department of Corrections at the California Medical Center at Vacaville and San Quentin State Prison*

Neurologic disease is frequently associated with HIV infection. Both the central nervous system (CNS) and the peripheral nervous system (PNS) may be affected. The causes of neurological disease are various: autoimmune reactions due to immune disregulation; opportunistic infections (OIs); metabolic and nutritional derangement due to or associated with AIDS; the direct attack on nerve tissue by HIV; and the toxic effects of drugs used to treat HIV and OIs.

The most common neurologic problem in HIV infection is peripheral neuropathy (PN), which involves lesions of the PNS. The major form of PN in HIV disease is distal symmetric polyneuropathy (DSPN), which has been reported to occur in about a third of patients with AIDS(1). Several other PN types are associated with HIV disease, mainly acute and chronic inflammatory demyelinating polyradiculoneuropathies (Guillain-Barre-like diseases), mononeuropathy multiplex, and multifocal motor neuropathy. These diseases may be quite serious and life threatening. It is important to recognize them, but they are rare and occur in about 1% of AIDS patients.

Peripheral Neuropathy Treatment

Drug Treatments	Related Comments
▪ Nortriptyline 10 mg hs: increase dose by 10mg q 5 days to a maximum of 75 mg hs or 10-20mg po tid ▪ Neurotin (gabapentin): 300-800 mg po tid ▪ Ibuprofen 600-800 mg tid ▪ Topical: Capsaicin-containing ointments (Zostrix, etc.) For topical application; Lidocaine ointment 20-30% for topical use ▪ Alternatives: Phenytoin 200-400mg/d and crabmazepine 200-400 mg po bid *Table adapted from Bartlett JG, and Gallant JE. 2000-2001 Medical Management of HIV Infection, p.134.*	▪ Other tricyclics commonly used: amitriptyline, desipramine, or imipramine ▪ Capsaicin is often not well tolerated ▪ Mexiletene: inferior to amitriptyline in ACTG 242 and appeared no better than a placebo. Capsaicin ointment treatment disappointing. ▪ One report of 2 patients suggests response to HAART (Lancet 1998; 352:1906). ▪ A controlled trial of acupuncture failed to show any benefit (JAMA 1998; 280: 1590). ▪ Nucleosides commonly implicated,

DSPN is a "pattern recognition" disease involving a distal and symmetric numbness and/or dysesthesia, the famous "stocking and glove" distribution. This pattern results from the presumed mechanism of polyneuropathy, in which there is believed to be a systemic attack upon the nerves. Nerve repair is under the direction of the nerve cell body, which contains the nucleus and cell machinery.

In theory, the clinical diagnosis of DSPN is straightforward for any competent examiner. A "directed" neurologic exam for suspected DSPN is simple and should be performed by the provider when the patient's complaints are consistent with DSPN, i.e., numbness and or pain (usually described as burning, tingling, or "pins and needles") involving the distal extremities. The toes and feet are usually affected first, and as the disease progresses the height of the "stocking" will rise. When the symptoms reach the upper portions of the legs, the fingers and hands may be affected. There may or may not be weakness of the distal extremities. DSPN seems to affect primarily sensory nerves, but there may be some weakness, most often described as "clumsiness." Patients may complain that they can no longer cross their toes, or that their fingers are clumsy when they try to perform fine manipulations, like buttoning a shirt.

The exam consists first of "subjective" sensory testing, where the examiner uses a safety pin, 128 Hz tuning fork, and cotton swabs to assess vibration, thermal, light touch, and pain sensation. The tuning fork is used to evaluate vibration and thermal sensation. In order to test the latter, the weighted end of the fork is touched to the skin and the patient is asked whether it feels hot or cold. In DSPN one would expect the patient to report a distal and symmetric loss of perception of the various modalities. It is important to check all four modalities.

Next, the "objective" portion of the exam consists of checking the reflex pattern and muscle bulk and strength. In DSPN, one would expect a diminution or loss of the ankle jerk reflexes. The most common muscle bulk abnormality in DSPN is a loss of the extensor digitalis brevis muscles and "high arches" (a pes cavus/talipes deformity), as assessed by physical inspection. Another objective sign of DSPN is atrophic skin change, particularly a significant loss of hair from the distal extremities. Hair is usually present over the great toe and the ankle area.

When necessary, the diagnosis of DSPN can be confirmed by electromyelography (EMG) and nerve conduction velocities (NCVs or NCSs). My screening protocol for DSPN consists of checking the sural sensory, posterior tibial motor, posterior tibial F-waves, and H-reflex waveforms. Needle EMG is performed if there is a suspicion of radiculopathy or axonopathy.

In my non-prison practice I have found that my clinical diagnosis of DSPN is supported by EMG/NCS testing 90% of the time. In my prison practice my clinical diagnosis is supported by the results of EMG/NCS only 33% of the time. In other words, about 2/3 of my prison patients who present with "classic" DSPN are normal on all tests.

I have wondered why the clinical impression should be so discordant with the electrophysiological results in my prison patients. One thing that impresses me is that there is a higher rate of Hepatitis C coinfection among HIV+ patients in the prison than in the non-prison setting. It is possible that Hepatitis C coinfection contributes to the symptoms that mimic DSPN. Chronic hepatitis of all types is associated with pruritis and burning/tingling dysesthesiae of the extremities. Erythromelalgia is the specific term for these dysesthesiae. The discomfort of erythromelagia is due to the irritation of dermal nerve endings by circulating vasoactive substances and toxins, rather than due to actual nerve damage.

Additionally, one must consider the reality that incarcerated patients have a high rate of substance dependence and may be influenced by secondary gain, may be consciously or subconsciously fabricating and/or amplifying symptoms. A drug addict stuck in prison may be seeking narcotics or other drugs for purposes other than pain control.

In summary, DSPN is common in patients who have HIV infection. In the non-prison setting, this diagnosis can usually be confirmed by taking an appropriate history and performing a directed neurological examination. In correctional medicine, the diagnosis may be complicated by coinfections such as HCV which may cause symptoms that mimic DSPN and drug-seeking behaviors among a population who have a high rate of substance dependence. In correctional medicine, if the diagnosis of DSPN is to be made on purely clinical grounds, it must be based on objective abnormalities, such as muscle wasting, loss of deep tendon reflexes, and atrophic skin changes. If these abnormalities are not present, it may be necessary to confirm or exclude the diagnosis with the use of electrophysiologic testing. A good "screening protocol" for DSPN includes testing sural sensory, posterior tibial motor and F-wave studies, and the H-reflexes. If these are completely normal, one can exclude any significant polyneuropathy.

**Nothing to disclose*

1. So YT, Holtzman DM, Abrams DI, Olney RK. Peripheral neuropathy associated with acquired immunodeficiency syndrome. Arch Neurol. 1988; 45: 945-948.

Save the Dates

United States Conference on AIDS (USCA) 2001
September 13-16, 2001
Fontainebleau Hilton Resort and Towers/ Miami Beach, Florida
For details, see http://www.nmac.org/usca2001/home.htm
Pre-conference symposium on HIV and Hepatitis in Corrections sponsored by NMAC and HEPP News
email: info@nmac.org
call: 202.483.6622
Fee: June 15-August 21: $375/members; $450/nonmembers; On-site: $550

Infectious Disease Society of America (IDSA): 39th Annual Meeting
October 25–28, 2001
San Francisco, California
Late-breaker abstract deadline: August 20, 2001
Discounted registration deadline: July 30, 2001
Write: 99 Canal Center Plaza, Suite 210 Alexandria, VA 22314
Fax: 703.299.0204
Visit: http://www.idsociety.org

News Flashes

Substituting Non-Nucleoside Drugs for Protease Inhibitors May Result in Lower Lipid Levels
Protease inihibitors (PIs) have been linked to certain side effects inlcuding the development of high levels of lipids (triglycerides and cholesterol) in the blood. Switching patients to a non-nucleoside based drug regimen (using Nevirapine or Efavirenz) has been a common strategy used by physicians to counter this problem. However, Swiss researchers have recently found that 38% of patients continued to have high cholesterol levels once their medication was switched. When the patient was originally taking the PI Ritonavir, the switch to Efavirenz was more likely to decrease the triglyceride levels. Patients originally on other PIs who switched to Efavirenz had little or no change in lipid levels. Authors suggest clinicians should keep this in mind when considering changes in a patient's regimen. In another study released this week, Viramune (Nevirapine) did seem to be associated with lower lipid levels. HIV care providers should be aware that the "jury is still out" on the effect of NNRTIs vs PIs on lipid levels. (J AIDS 2001; 26 (4): 389-391.)

HIV Drug Therapies: Failures Reported
Physicians in Pima County, Arizona are beginning to see an increase in AIDS-related deaths for the first time since the advent of HAART in 1995; the number of AIDS-related deaths this year is expected to double. Washington State is also seeing an increase in AIDS cases for the year 2000, the first increase in nine years. The percentage of women and minorities with AIDS is also increasing. These increases may be attributable to lack of access to treatment and the beginning of failure of the triple-drug cocktail which has become the standard regimen for HIV infection. Health officials in the United Kingdom are seeing a similar phenomenon, with as many as 25% to 27% of HIV patients exhibiting resistance to one or more antiretroviral drugs. The risk of infection by drug-resistant HIV strains has increased yearly through the 1990s. "Super HAART" regimens, consisting of four or more drugs, is being used in patients for whom the existing triple-cocktail therapy has failed. (Reuters, 5/3/01)

Non-Injection Drug Users at Risk for HCV
Non-injection drug users are at higher risk for contracting HCV than members of the general population, according to an National Institutes of Health release. The findings of a new study report that 14% of non-injection drug using women and 17% of non-injection drug using men tested positive for HCV. This is significantly higher than the 2% prevalence rate of HCV among members of the general population. Sharing of contaminated syringes in injection drug use accounts for 60% of HCV infections. Researchers plan to look further into the modes of HCV transmission to determine the risks associated with non-injection drug use. (NIH press release, 5/7/01)

Mortality Due to End-Stage Liver Disease Increasing in HIV-Positive Patients
Although HAART has decreased HIV-related mortality, end-stage liver disease is increasing in importance as a comorbidity factor. One study has shown that the percentage of deaths of HIV-positive patients increased from 11.5% in 1991 to 50% in 1998-1999. Most of these patients had detectable antibodies to Hepatitis C virus (HCV). End-stage liver disease is now the leading cause of death among HIV-positive patients in the hospital in where this study was conducted. (Clinical Infectious Diseases 32 (3): 492, 2/1/01.)

Resources & Websites

Hepatitis Websites:

July 2001 Hepatitis C Virus (HCV) Advocate
http://www.hcvadvocate.org

CDC's Hepatitis webpage
http://www.cdc.gov/ncidod/diseases/hepatitis/index.html

NIH's National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
http://www.niddk.nih.gov

The American Liver Foundation
http://www.liverfoundation.org

Canadian Hepatitis Info site
http://www.hepnet.com

HIV and Hepatits C Coinfection: ATIS
http://www.hivatis.org/hepatitisC.html

HIV Treatment Websites:

HRSA Releases Treatment Guide for Women
http://hab.hrsa.gov/womencare.htm

Medscape HIV/AIDS
http://hiv.medscape.com

Hepatitis C: A Correctional-Public Health Opportunity
http://www.medscape.com/Medscape/ID/journal/2001/v03.n03/mid0614.groo/mid0614.groo-01.html

HIV Insite:
http://hivinsite.ucsf.edu

AEGiS: The largest HIV/AIDS resource on the Internet
http://www.aegis.com

Neuropathy Websites:

The Neuropathy Association
http://www.neuropathy.org/index.asp

Medicine Net
http://www.medicinenet.com

AIDS Treatment News: Neuropathy
http://www.immunet.org/immunet/atn.nsf/page/a-250-09

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 October 31, 2001. The estimated time for completion of this activity is one hour and there is no fee for participation.

1. What is the first serological marker to appear in acute HBV infection?
   (a) HBc IgG
   (b) HBsAb
   (c) HBeAg
   (d) HBsAg
   (e) HbeAb

2. How does prior HIV infection affect the likelihood of establishing chronic HBV infection?
   (a) it has no effect
   (b) it increases the chance of establishing chronic HBV infection
   (c) it decreases the likelihood of establishing chronic HBV infection
   (d) it increases the level of HBc IgM in the serum
   (e) it decreases serum HBV DNA levels

3. What percentage of new HBV cases develop into chronic HBV?
   (a) 10%
   (b) 20%
   (c) 25%
   (d) 50%
   (e) 80%

4. What factors may be responsible for causing abnormal hepatic transaminase levels?
   (a) indinavir
   (b) acute or chronic viral hepatitis infection
   (c) isoniazid
   (d) A and B
   (e) A, B, C

5. Which of the following sensations should be tested during the subjective portion of DSPN diagnosis?
   (a) vibration
   (b) light touch
   (c) pain sensation
   (d) thermal sensation
   (e) all of the above

HEPP News Evaluation

5 Excellent 4 Very Good 3 Fair 2 Poor 1 Very Poor

1. Please evaluate the following sections with respect to:

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HEPPigram	5 4 3 2 1	5 4 3 2 1
HIV 101	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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3. What future topics should HEPP News address?

4. How can HEPP News be made more useful to you?

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