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HEPP Report: Infectious Diseases in Corrections, Vol. 7 No. 3

HIV & Hepatitis Education Prison Project

HEPP REPORT

HIV & HEPATITIS EDUCATION PRISON PROJECT

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INFECTIOUS DISEASES IN CORRECTIONS

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ABOUT HEPP

HEPP Report, a forum for correctional problem solving, targets correctional physicians, nurses, administrators, outreach workers, and case managers. Published monthly and distributed by email and fax, HEPP Report provides up-to-the moment information on HIV/AIDS, hepatitis, and other infectious diseases, as well as efficient ways to administer treatment in the correctional environment. Continuing Medical Education credits are provided by the Brown University Office of Continuing Medical Education. HEPP Report is distributed to all members of the Society of Correctional Physicians (SCP) within the SCP publication, CorrDocs (www.corrdocs.org).

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UPDATE FROM THE 11TH CONFERENCE ON RETROVIRUSES AND OPPORTUNISTIC INFECTIONS (CROI)

HELD IN SAN FRANCISCO FEBRUARY 8-11 2004: FIRST OF TWO PARTS

OPENING SESSION

Joseph Bick, MD, Chief Medical Officer, California Medical Facility, Calif. Department of Corrections*

United Nations Special Envoy on HIV/AIDS in Africa Stephen H. Lewis discussed the current state of the HIV epidemic. Worldwide it is estimated that 10 million women aged 15-24 years old are HIV-infected, and six million persons need antiretroviral treatment (ART) based upon a CD4 count of less than 200/mm^3. An estimated four million Africans have a CD4 count of less than 200/mm^3; less than 3% are receiving ART. Worldwide, there are an estimated 14,000 new infections each day and three million HIV-related deaths per year. Furthermore, the HIV epidemic has resulted in millions of orphaned children.

> **"**Worldwide, most women are not empowered to insist upon condom use or choose not to use them because they interfere with conception.**"**

Mr. Lewis detailed the World Health Organization's "three by five" initiative, intended to bring ART to three million people in Africa by 2005. Even if these goals are met, only half of those who need ART will receive it.

Mr. Lewis questioned why "We have all of the money needed to fight the war on terrorism, why not to fight (the terror) of AIDS?" He said, "I beg you to enter the fray" and "if morality is found lacking in the actions of government, let it be found in the advocacy of its citizens."

Mr. Lewis lamented the high number of women who are being infected within "monogamous" relationships by husbands who have sexual partners outside of marriage. Worldwide, most women are not empowered to insist upon condom use or choose not to use them because they interfere with conception.

Without an effective vaccine or resources to purchase ART, there is an urgent need for the development of effective microbicides.

Robin Shattock of St Georges Hospital and Medical School in London, further elucidated this topic in a presentation in which he described how a marginally effective microbicide that is used only half of the time could lead to a significant decline in new infections. A useful product would be active against a wide range of HIV isolates, non-toxic, active when exposed to body fluids, effective in both the vagina and the rectum, inexpensive, easy to manufacture, stable in a variety of climates, and available without prescription.

In a symposium on the global response to AIDS, some successes were reported. Gavin Churchyard, MD, Director of Aurum Health Research in South Africa described a program in which gold mining companies encourage voluntary testing of their employees and provide treatment to those who are found to be HIV-infected. This program has led to ART adherence rates of over 90%, and has resulted in a decrease in missed days of work due to illness. Educating businesses to recognize the financial benefit of providing HIV treatment to their workers may make it possible for many persons to access care that they could not otherwise afford. Anupong Chitwarakorn, MD of the Ministry of Public Health in Thailand also described targeted efforts in that country that have led to an 80% decrease in the rate of new infections between 1993 and 2003.

METABOLIC COMPLICATIONS

*David Alain Wohl**, MD*
The University of North Carolina, Co-Director HIV Services, North Carolina Department of Corrections

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WHAT'S INSIDE

Update from the 11th...

(continued from page 1)

Metabolic complications of HIV and its therapies have emerged as a major concern to persons living with HIV infection and to their health care providers. The impact of complications such as dyslipidemia, body shape change and disorders of glucose metabolism on HIV management may be evident in both the surge in the use of atazanavir, a protease inhibitor without significant effects on lipids or glucose metabolism, and the increasing prescription of lipid-lowering drugs. At the 11th CROI, epidemiologic data and a smattering of treatment trials regarding metabolic issues were presented.

If the increased use of statins and fibrates among HIV-infected patients is any indication, lipid abnormalities are becoming a frequent complication of HIV therapy. A fascinating study recently published by Riddler and colleagues in The Journal of the American Medical Association suggests that HIV infection itself causes declines in total and LDL cholesterol and that these are reversed by potent HIV therapy. However, it is also known that certain antiretrovirals can increase lipid levels even among HIV-uninfected volunteers. Therefore, what contribution HIV therapy makes to overall cardiovascular disease (CVD) risk is a subject of a debate fueled by data both supporting and refuting a role for HAART in CVD development. What is clear, however, is that not all antiretrovirals affect the determinants of CVD risk equally.

This point was somewhat illustrated by data from a substudy of AIDS Clinical Trials Group study A384, a large treatment naïve trial comparing efavirenz with nelfinavir when combined with either ZDV+3TC or d4T+ddI. While efavirenz led to greater increases in HDL (probably a favorable outcome), total cholesterol rose equally among those receiving efavirenz and those assigned nelfinavir. This finding supports previous work demonstrating that nelfinavir is less offensive to lipids than some of its sister protease inhibitors. There was a trend toward d4T+ddI being worse, lipid-wise, than ZDV+3TC. It should be noted that all the analyses presented to date use an intent-to-treat approach. Given that there were more adverse events among those receiving d4T+ddI and more virologic failures leading to treatment switches among those assigned nelfinavir, the relationship between actual exposure to these agents and adverse metabolic events has yet to be made clear.

The effect of HAART on other influences of CVD such as hypertension and diabetes has also been scrutinized. Researchers from a large consortium of European and North American sites examined the prevalence and incidence of hypertension among over 16,000 HIV-infected patients followed prospectively in the D:A:D Study. Over a median 1.5 years of follow-up, there was no effect of HAART or time on HAART on the prevalence of hypertension at entry or the change in blood pressure during study follow-up. Factors associated with elevated blood pressure were male gender, age, baseline blood pressure and high body mass index. Longer-term study is planned.

> **"**In addition to lipid and glucose disorders, body shape changes accompanying antiretroviral therapy are a challenge to patients and their clinicians.**"**

The last National Cholesterol Education Program (NCEP) guidelines emphasized the role of diabetes in CVD, considering the presence of this disorder equivalent to having established CVD when setting goals for lipid-lowering therapy. Previous reports have suggested an increased prevalence of diabetes and pre-diabetic conditions among HIV-infected persons. To assess the prevalence and incidence of glucose disorders as well as the potential contribution of HAART, investigators from the Multicenter AIDS Cohort Study (MACS) examined 1,107 men participating in the study from mid 1999 to late 2002. Of the 1,107 men , 563 were HIV-negative and 544 were HIV-infected (423 on HAART). Hyperglycemia (pre-diabetes and diabetes) was defined as fasting plasma glucose ≥110 mg/dL, use of anti-diabetic medication, or self-reported diagnosis of diabetes. Diabetes itself was defined as a FPG ≥126 mg/dL, use of anti-diabetic medication, or self-reported diagnosis of diabetes. Of HIV-infected men on HAART, 14% had diabetes at baseline compared with 5% in the HIV-negative group (odds ratio = 4.4; 95% confidence interval [CI]: 2.6, 7.4).

Among the cohort, 618 men had a FPG ≤105 mg/dL, no history of diabetes, and no use of anti-diabetic medication at baseline. Incident hyperglycemia developed in 79/618 (13%) during 1,054 person-years yielding an overall rate of 7.5 cases per 100 person-years. Incident diabetes was detected in 38 during 1,088 person-years, yielding an overall rate of 3.5 cases per 100 person-years. After adjustment for age and BMI, the hazard of pre-diabetes or diabetes among those on HAART was 1.8 times that of the HIV-negative group, and the hazard of diabetes among the HAART group was 3.1 times that of the HIV-negative group. Exposure to a HAART regimen including a PI, d4T or efavirenz were each significantly associated with a higher rate of developing pre-diabetes or diabetes compared to the HIV-negative group. These robust data indicate that at least in men, HAART is associated with risk of diabetes. Whether reduced reliance on d4T and the older PIs will reduce the incidence of diabetes among HIV-infected persons receiving HAART will require further follow-up.

In addition to lipid and glucose disorders, body shape changes accompanying antiretroviral therapy are a challenge to patients and their clinicians. Certainly, in correctional settings where confidentiality is more challenging, the facial and limb fat loss that is the hallmark of HIV-associated morphologic changes can be a tell tale sign of HIV infection. Further, the redistribution of fat observed in HIV-infected individuals, central obesity and peripheral fat wasting, has been associated with the metabolic syndrome and heightened risk for CVD. In addition, disfiguring body shape changes can reduce self-esteem and threaten antiretroviral adherence. To date, the only intervention to improve peripheral lipoatrophy to any significant degree has been the replacement of stavudine (d4T, Zerit) and, to a lesser extent zidovudine (ZDV, Retrovir), with abacavir (ABC, Ziagen). Unfortunately, the increase in limb fat following d4T discontinuation has been modest and slow to be appreciated.

A study from Australia aimed to determine if the PPAR-gamma agonist, rosiglitazone, could reverse fat wasting in HIV-associated lipoatrophy. A total of 108 patients with limb fat less than 20% of limb tissue or limb fat percentage at least 10% less than truncal fat percentage by DEXA were enrolled. Participants had to have been receiving combination antiretroviral therapy unchanged for 12 weeks. Almost all (98%) of the subjects were male and white. There were a disproportionate number of participants receiving d4T in the rosiglitazone arm compared to the control arm (53% versus 29%). All subjects were randomized to 8 mg/day of rosiglitazone or matching placebo for 48 weeks. At week 48, there was no difference between the study arms in the change of fat as measured by DEXA. Limb fat increased by 0.14 kg (5%) in the rosiglitazone group but also increased 0.18 kg (7%) in the placebo group (mean difference

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Letter from the Editor

Dear Correctional Colleagues:

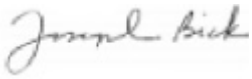
In February of this year, over 3,000 of the world's leading HIV researchers and clinicians gathered in San Francisco for the Eleventh Annual Conference on Retroviruses and Opportunistic Infections (CROI). During this five-day meeting, over 1,000 abstracts were presented detailing the current state-of-the-art in HIV care. HEPP Report was well represented, contributing original research to the scientific meeting in both poster and oral formats. This month, in episode one of our biased review, Dr. David Wohl reports on various studies conducted on the metabolic complications of antiretroviral therapy (ART). As highly effective ART prolongs the lives of our HIV-infected patients, many of them are experiencing diabetes, lipodystrophy, cholesterol alterations, and other metabolic abnormalities. Teasing out the contribution of treatment, HIV infection, and other etiologies is a complex issue that has great significance for the overall well-being of our patients.

Also this month, Dr. Bethany Weaver presents a case study that highlights some of the challenging pharmacokinetic interactions that can be seen when patients are receiving both ART and treatment for opportunistic infections (OIs). This case reminds us that to be an effective HIV clinician, we must always consider the potential for drug-drug interactions whenever we alter the treatment regimen of our patients.

This month's HIV 101 is a two-part table that presents the current recommendations for when to initiate ART and provides helpful information that can be used to assist patients in the decision process concerning when to initiate therapy based upon the risk for progression to OIs.

Next month, in addition to our continued coverage of CROI, HEPP Report will focus on some of the most common gastrointestinal manifestations of HIV disease. Thank you for your ongoing readership, and we encourage your feedback on how we can be most useful to you in your correctional health care practices.

Sincerely,



Joseph Bick, MD

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Faculty Disclosure

In accordance with the Accreditation Council for Continuing Medical Education Standards for Commercial Support, the faculty for this activity have been asked to complete Conflict of Interest Disclosure forms. Disclosures are listed at the end of articles. All of the individual medications discussed in this newsletter are approved for treatment of HIV and hepatitis unless otherwise indicated. For the treatment of HIV and hepatitis infection, many physicians opt to use combination antiretroviral therapy which is not addressed by the FDA.

CASE STUDY: Drug-drug Interactions Associated with the Use of Antiretroviral Therapy

Case presentation and discussion by Bethany Weaver, D.O., M.P.H., Acting Instructor of Medicine, University of Washington Center for AIDS & STD Research (CFAR) and Northwest Correctional Medicine Education Program.*

CASE: *A 30 year-old male inmate with class B3 HIV/AIDS and a history of injection drug use, idiopathic thrombocytopenic purpura (ITP), upper gastrointestinal bleeding, and chronic untreated hepatitis C presents to you for an initial evaluation one week after being transferred from another facility. His HIV infection is being treated with Combivir (300 mg AZT plus 150 mg Lamivudine (3TC)) one po bid and Viramune (Nevirapine) 200 mg po bid. He reports that he has had no problems with this regimen, and has missed only one dose in the prior six weeks. His last CD4 count three months ago was 228 (15%) with an HIV-1 viral load by bDNA of <75 copies/ml. Prior to initiation of antiretroviral therapy (ART) 18 months ago, his nadir CD4 count was 90 (8%) and his highest documented viral load was 35,000 copies/ml.*

The patient's physical exam is unremarkable except for poor venous access. The review of systems is negative except for a history of low-grade fever and mild non-productive cough. The patient specifically denies dyspnea, sweats, pain, headache, rash, nausea, vomiting, and change in appetite or weight. You learn that the patient has traveled throughout the United States over the past three years as a "roadie" for rock groups. He specifically denies known exposure to tuberculosis.

You find in the medical record that a chest radiograph (CXR) obtained during intake screening at his prior facility three weeks ago was reported to show bilateral infiltrates. Because of a concern that the patient might have tuberculosis, you immediately have the patient don a mask while you arrange for his transfer to a negative pressure respiratory isolation room.

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UPDATE FROM THE 11TH...

(continued from page 2)

-0.04 kg [95%CI -0.29 to 0.21]; p=0.74). CT scanning of the abdomen and thigh demonstrated similar decreases in intrabdominal fat in both groups but neither had an increase in thigh subcutaneous fat. Subjects in both study groups reported similar subjective improvements in lipoatrophy. Mean insulin levels, which were in the normal range at baseline, declined equally in both study arms.

A curious finding in this trial was the relative increase in limb fat in the control subjects. Previous data on the natural history of lipoatrophy, much of it from Australia, indicated that continued worsening of fat wasting could generally be expected in the absence of NRTI therapy modification. One potential explanation for the improvement seen in the placebo arm is that many of the patients in this study had in the months prior to study entry (before the 12 weeks of stable HAART required prior to enrollment) switched from d4T to abacavir. Abacavir use was high in both arms at entry. Despite these concerns, whether anyone will bother to study this or like agents for lipoatrophy is unlikely.

The metabolic effects of the extended release once a day formulation of d4T (d4T-XR) in comparison to standard d4T (also called immediate release, or d4T-IR) was described by investigators from Bristol Myers Squibb who performed an analysis using data from two completed clinical trials comparing d4T-XR and d4T-IR. Over 800 treatment naïve subjects participating in the trials were studied. All received d4T-XR or d4T-IR plus 3TC+EFV. Risk factors for investigator-defined lipoatrophy were baseline triglyceride levels >200 mg/dL and age >40 years. Further, report of lipoatrophy during the 48-week studies was almost two times more likely among d4T-IR assigned subjects compared to those assigned d4T-XR. The combination of these three factors (high triglycerides, age 40+ and d4T-IR) seemed to have, at least, an additive effect. The report states that among subgroups with different risk factors such as <40 years of age with triglycerides <200 mg/dL, age >40 years and triglycerides >200 mg/dL, etc., the risk of lipoatrophy was greater with d4T-IR than d4T-XR in each stratum. Whether these differences were statistically significant is not stated. There will need to be additional evidence to indicate the extended release formulation of d4T is safer vis-à-vis metabolic toxicity than standard d4T. A comparison with competitive nucleosides such as ZDV or tenofovir and objective evaluations of body shape will need to be produced before the image of d4T can be rehabilitated.

The effect of the new kid on the formulary, FTC (Emtriva), on body shape was detailed in a head-to-head study comparing d4T (standard formulation) + ddI + EFV versus FTC + ddI + EFV. In a placebo-controlled study of 571 subjects randomized to each regimen, body shape measurements but no DEXA or CT scanning were performed at regular intervals. Subjects in both study arms gained weight initially but, as has been seen in other studies, the d4T receiving subjects experienced a later decline in weight. By week 72 of the study there was a significant decline in weight from baseline in the d4T arm versus a net gain in the FTC arm. Waist, hip and chest circumference and abdominal girth were significantly lower in the d4T group but waist to hip ratio was no different between study arms. Investigator-reported lipodystrophy was more common in those randomized to d4T group. Fasting triglycerides increased in both arms but the increase was significantly greater in the d4T arm (+27 mg/dL for FTC, +97.8 mg/dL for d4T, p <.001). HDL cholesterol also increased in both groups but more so with FTC (+13.5 mg/dL) versus d4T (+8.8 mg/dL) (p=.001). There was no difference between study arms in the magnitude of the increase in LDL cholesterol (+15-17 mg/dL), total cholesterol (+37-44 mg/dL) or glucose (+2.5-4.5 mg/dL). As has been reported previously, FTC performed better virologically.

Lastly, data were also presented on the effect of T-20 (Fuzeon) on body shape. In an analysis of body shape data from over 1,000 patients participating in clinical studies of T-20, there was no evidence of T-20 induced body shape change.

Next Month: *Part Two of HEPP's Update from the 11th Conference On Retroviruses and Opportunistic Infections*

DISCLOSURES:
**Nothing to disclose*
***Speaker's Bureau: GlaxoSmithKline, Gilead, Merck, Roche, Abbott*
Research Support: Roche

CASE STUDY...*(continued from page 4)*

Q: What are likely causes of this patient's current presentation?
Once isolated, the patient is subjected to a battery of tests that includes sputum induction for AFB, bacteria, and pneumocystis (PCP); a complete blood count (CBC), chemistry panel, blood cultures, and arterial blood gas (ABG); and placement of a tuberculin skin test. A repeat CXR again demonstrated bilateral upper lobe infiltrates. Baseline CBC and chemistry panel were unremarkable, as was his ABG. He was treated empirically with PCP doses of trimethoprim-sulfamethaxaxole, and azithromycin for community acquired bacterial pneumonia.

His PPD skin test was negative at 48 and 72 hours. After five days of treatment, his sputum specimens were reported as negative for AFB and PCP. Bacterial culture yielded normal oral flora. He continued to have a non-productive cough and daily fevers to 102° F, while his clinical examination was unchanged.

Q: What do you do now?
You choose to obtain a CT chest that shows diffuse bilateral non-calcified pulmonary nodules that appear inflammatory. Coccidioidomycosis serology and urine histoplasma antigen are negative. Bacterial and fungal blood cultures are negative. The patient has a bronchoscopy with bronchoalveolar lavage, which reveals coccidioidomycosis on fungal exam and culture.

Q: What do you treat your patient with?
You choose to treat him with itraconazole 200 mg po bid instead of amphotericin. After eight days of treatment, your patient has failed to significantly improve. The medical record documents that the patient has received every dose. He denies emesis or diarrhea. After 10 days of treatment, you obtain a serum itraconazole level to check absorption and the level is zero. You decide to double the dose of itraconazole to 400 mg po bid. Over the next five days, the patient becomes afebrile and improves clinically. He is discharged to follow-up with you in clinic. Two weeks later, the patient sees you in clinic. He is complaining of headache, nausea and vomiting. He denies fever and cough. A CXR is significantly improved over past films. Because of a concern for meningitis, the patient is sent for a head CT and a lumbar puncture (LP). Both the CT and the LP were normal. A chemistry panel reveals an elevated AST and ALT, 246 and 115, respectively. Due to nausea and vomiting and elevated liver tests, the itraconazole was held.

Q. Why was the serum level of itraconazole initially undetectable? What later caused the patient to develop nausea, vomiting, headache and elevated liver function tests?

DISCUSSION:
Coccidioidomycosis is usually treated with amphotericin B (0.5 to 0.7 mg/kg/day iv), ketoconazole (400 mg/day po), fluconazole (400 to 800 mg/day po or iv), or itraconazole (200 mg b.i.d. po). The more seriously ill the patient, the more likely amphotericin B will be selected for initial therapy. Subacute or chronic presentations are more likely to be treated initially with an azole drug. Because your patient is clinically stable, has a rising CD4 count, and has poor venous access he was initially treated with itraconazole.

Nevirapine is an inducer of cytochrome P450 3A4 enzymes, which are also involved in the metabolism of itraconazole. There is limited data concerning the co-administration of nevirapine and itraconazole. Based upon the known pharmacokinetics of the drugs and studies showing nevirapine induces the metabolism of ketoconazole, the concurrent administration of nevirapine and itraconazole is generally not recommended. Increasing the dose of itraconazole as a means to overcome the presumed induced metabolism by nevirapine is an option, but without monitoring drug levels it is difficult in an individual patient to ensure therapeutic levels while avoiding toxicity. This patient initially failed to respond to therapy and was found to have undetectable serum levels of itraconazole. Once his dose of itraconazole was doubled, he clinically improved. What he failed to tell you was that he chose to stop his antiretroviral therapy because another inmate told him that nevirapine can "mess up my liver." Once nevirapine was discontinued, his serum level of itraconazole climbed precipitously leading to signs and symptoms of toxicity. The patient's chronic liver disease also could have influenced his serum levels.

When the initial decision was made to treat the patient's coccidioidomycosis infection, there were a number of suitable options. If the ART regimen was to remain unchanged, the patient could have been treated with amphotericin. Amphotericin was probably not necessary in this patient since his coccidioidomycoses infection appeared to be isolated to the lungs, he was only mildly ill, and he had an improving immune system. Fluconazole exhibits less drug-drug interactions with nevirapine than does itraconazole, ketoconazole, or voriconazole. Alternatively, the ART regimen could have been altered to include agents that are less likely to alter the metabolism of itraconazole.

The treatment of HIV-infected persons has become increasingly complicated. Many of the medications used to treat HIV and associated conditions can lead to complex pharmacokinetic interactions, and this should always be kept in mind whenever changes are made to a patient's medication regimen. Excellent resources are available which detail many of the most common interactions, and can be invaluable to clinicians as they attempt to adhere to the *dictum primum non nocere*.

DISCLOSURES:
**Stockholder: Pfizer*

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HIV 101

TABLE 1. Helping HIV-Infected Persons Decide When to Start HAART

Modified from the Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents. Recommendations for When to Initiate Antiretroviral Therapy in Chronic HIV Infection, November 10, 2003. http://aidsinfo.nih.gov/guidelines/adult/AA_111003.html.

Clinical Category	CD4+ T-Cell Count	Plasma HIV RNA	Recommendation
Symptomatic (AIDS or severe symptoms)	Any value	Any value	Treat
Asymptomatic, AIDS	CD4+ T-cells <200/mm^3	Any value	Treat
Asymptomatic	CD4+ T-cells >200/mm^3 but <350/mm^3	Any value	Most clinicians recommend offering treatment*
Asymptomatic	CD4+ T-cells >350/mm^3	>55,000 (by RT-PCR or bDNA)**	Some clinicians recommend initiating therapy, as the three-year risk for untreated patients to develop AIDS is >30%. Other clinicians recommend deferring therapy and monitoring the CD4+ T-cell count and plasma HIV RNA more frequently. Clinical outcome data after initiating therapy are lacking.
Asymptomatic	CD4+ T-cells >350/mm^3	<55,000 (by RT-PCR or bDNA)**	Most clinicians recommend deferring therapy and monitoring the CD4+ T-cell count, as the three-year risk for untreated patients to develop AIDS is <15%.

** Clinical benefit has been demonstrated in controlled trials only for patients with CD4+ T-cells <200/mm^3*
*** Although a 2-2.5 fold difference existed between RT-PCR and the first bDNA assay (version 2.0), with the 3.0 version bDNA assay, values obtained by bDNA and RT-PCR are similar except at the lower end of the linear range (<1,500 copies/mL).*

TABLE 2. The Risk for Progression to AIDS-Defining Illness Among a Cohort of Men Not Receiving HAART, Predicted by Baseline CD4+ T-Cell Count and HIV Viral Load*

CD4 <200 cells/mm^3 Plasma Viral Load (copies/mL)†		Percentage with AIDS-defining Illness after 3, 6, 9 years‡			
bDNA	**RT-PCR**	**n**	**3 years**	**6 years**	**9 years**
≤500	≤1,500	0§	-	-	-
501-3,000	1,501-7,000	3§	-	-	-
3,001-10,000	7,001-20,000	7	14.3	28.6	64.3
10,001-30,000	20,001-55,000	20	50.0	75	90.0
>30,000	>55,000	70	85.5	97.9	100.0
CD4 201 - 350^ cells/mm^3 Plasma Viral Load (copies/mL)†		**Percentage with AIDS-defining Illness after 3, 6, 9 years‡**			
bDNA	**RT-PCR**	**n**	**3 years**	**6 years**	**9 years**
≤500	≤1,500	3§	-	-	-
501-3,000	1,501-7,000	27	0	20.0	32.2
3,001-10,000	7,001-20,000	44	6.9	44.4	66.2
10,001-30,000	20,001-55,000	53	36.4	72.2	84.5
>30,000	>55,000	104	64.4	89.3	92.9
CD4 >350 cells/mm^3 Plasma Viral Load (copies/mL)†		**Percentage with AIDS-defining Illness after 3, 6, 9 years‡**			
bDNA	**RT-PCR**	**n**	**3 years**	**6 years**	**9 years**
≤500	≤1,500	119	1.7	5.5	12.7
501-3,000	1,501-7,000	227	2.2	16.4	30.0
3,001-10,000	7,001-20,000	342	6.8	30.1	53.5
10,001-30,000	20,001-55,000	323	14.8	51.2	73.5
>30,000	>55,000	262	39.6	71.8	85.0

‡ In the reference study, AIDS was defined according to the 1987 CDC definition, which did not include asymptomatic persons with CD4+ T-cells counts < 200 cells/mm^3.
§ Too few subjects were in the category to provide a reliable estimate of AIDS risk.
^ A recent evaluation of data from the (MACS) Multicenter AIDS Cohort Study of 231 persons with CD4+ T-cell counts >200 and <350 cells/mm^3 demonstrated that of 40 (17%) persons with plasma HIV RNA <10,000 copies/mL, none progressed to AIDS by 3 years. Of 28 individuals (29%) with plasma viremia of 10,000 - 20,000 copies/mL, 4% and 11% progressed to AIDS at 2 and 3 years, respectively. Plasma HIV RNA was calculated as RT-PCR values from measured bDNA values.

Save the Dates

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Inside News

Study: Accelerated Progression of HCV in HIV-Infected Persons
A new study reported on 914 HCV/HIV co-infected patients with elevated serum alanine aminotransferase (ALT) levels who underwent liver biopsy in 10 European health care centers between 1992 and 2002. Researchers found that HCV/HIV co-infected patients developed severe liver fibrosis more frequently than did HCV-mono-infected persons. Nearly one-half of patients aged >40 years with elevated serum ALT levels had severe liver fibrosis (METAVIR score F3 or F4). The authors recommended that because liver fibrosis worsened rapidly with age, anti-HCV treatment should be considered as a priority for co-infected patients, and in the absence of contraindications, it should be provided as early as possible. Given the magnitude of the problem worldwide, strategies aimed at preventing HCV exposure and reducing alcohol consumption are warranted, especially in those with HIV infection.
Martin-Carbonero L et al. Incidence and Predictors of Severe Liver Fibrosis in HIV-infected Patients with Chronic Hepatitis C: A European Collaborative Study. Clin Inf Dis 2004; 38:128-133

ACTG 384: What is the Optimal Initial HAART Regimen?
This large, multicenter study compared six different initial treatment strategies in an attempt to determine the optimal initial therapy for HIV and whether some initial regimens increase the likelihood of treatment success with future regimens. Regimens evaluated included: d4T + ddI + efavirenz, d4T + ddI + nelfinavir, AZT + 3TC + efavirenz, AZT + 3TC + nelfinavir, d4T + ddI + efavirenz + nelfinavir, and AZT + 3TC + efavirenz + nelfinavir. In this study, the regimen of AZT + 3TC + efavirenz emerged as clearly superior to the other five combinations. Data suggested that the NRTI combination of d4T + ddI should be avoided as part of initial therapy because of an increased rate of toxicity. A metabolic substudy of ACTG 384 also showed that d4T + ddI leads to a greater degree of fat atrophy as compared to AZT + 3TC. The study also demonstrated that the initial antiretroviral regimen is the patient's best chance for treatment success.
Sax, P; AIDS Clinical Care, January 2004

FDA Approves Pegasys Prefilled Syringes for the Treatment of Hepatitis C
Pegasys, a pegylated alpha interferon, and Copegus (ribavirin, USP) were approved by the FDA in December 2002 for use in combination for the treatment of adults with chronic hepatitis C who have compensated liver disease and have not previously been treated with interferon alpha. Pegasys, which is currently available in vials as a pre-mixed solution, is now available in prefilled syringes. Dr. David Bernstein, Director of Hepatology at North Shore University Hospital, notes that taking a medication by self-injection can often be challenging. "Reducing the number of steps involved can make the process less intimidating for patients and reduce the risk of errors."
www.natap.org

Risk Factors And Hepatoxicity Associated With Nevirapine (Viramune)
The FDA recently revised the Viramune Product Insert to include a more gender-focused description of hepatic adverse events associated with Viramune. The revised section now indicates that increased AST or ALT levels and/or co-infection section with hepatitis B or C at the start of antiretroviral therapy are associated with a greater risk of hepatic adverse events. Women appear to have a three-fold higher risk than men for rash-associated hepatic events (4.6% versus 1.5%). Patients with higher CD4 counts may also be at higher risk for rash-associated hepatic events with Viramune. In a retrospective review, women with CD4 counts >250 cells/mm^3 had a 9-fold higher risk of rash-associated hepatic adverse events compared to women with CD4 counts <250 cells/mm^3 (8.4% versus 0.9%). An increased risk was observed in men with CD4 counts >400 cells/mm^3 (4.5% versus 0.7% for men with CD4 counts <400 cells/mm^3).
www.natap.org

Resources

11th Conference on Retroviruses and Opportunistic Infections Program
http://www.retroconference.org/2004/pages/++frame/ProgGlance.htm

CDC Division of HIV/AIDS Prevention
http://www.cdc.gov/hiv/pubs/guidelines.htm

HCV and HCV/HIV Coinfection Information
http://www.hivandhepatitis.com/reports/2003list.html

http://www.harmreduction.org

http://www.cdc.gov/ncidod/diseases/hepatitis/c/

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 September 30, 2004. The estimated time for completion of this activity is one hour and there is no fee for participation.

1. A microbicide that would be useful in the worldwide efforts to decrease HIV transmission would have the following characteristics:
   a) Be active against a wide range of HIV isolates
   b) Retain activity when exposed to body fluids
   c) Be inexpensive, easy to manufacture, and stable in a variety of climates
   d) Be available without prescription
   e) All of the above

2. A 25-year-old asymptomatic HIV-infected man has a CD4+ cell count of 370/mm^3 and a plasma HIV RNA of 48,000. Most physicians would recommend:
   a) Initiating highly antiretroviral therapy with a protease inhibitor and two nucleoside agents
   b) Initiating highly antiretroviral therapy with a non-nucleoside reverse transcriptase inhibitor and two nucleoside reverse transcriptase inhibitors
   c) Deferring therapy and following lab work
   d) Initiating antiretroviral therapy until the HIV viral load is undetectable, and then commencing a "strategic treatment interruption"

3. An analysis of data from the Multicenter AIDS Cohort Study (MACS) suggests that HAART is associated with an increased risk of diabetes in men.
   a) True
   b) False

4. The fact that lipid abnormalities are becoming a frequent complication of HIV therapy is evidenced by the following:
   a) The increase in the use of atazanavir
   b) The increase in the use of statins and fibrates
   c) Problems associated with antiretroviral adherence due to disfiguring body shape changes
   d) All of the above

5. To date, the only intervention shown to improve peripheral lipoatrophy to any significant degree has been:
   a) The addition of rosiglitazone
   b) Changing to a high fat diet
   c) Switching to a regimen that does not include stavudine (d4T)
   d) Switching to a non-protease inhibitor regimen

6. A recent study from Australia has shown that rosiglitazone is effective in reversing fat wasting in HIV-associated lipodistrophy
   a) True
   b) False

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	educational value	clarity
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2. Do you feel that HEPP Report helps you in your work? Why or why not?

3. What future topics should HEPP Report address?

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

5. Do you have specific comments on this issue?

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