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OREGON PUBLIC HEALTH DIVISION • OREGON HEALTH AUTHORITY

PREVENTING CORONARY HEART DISEASE IN PEOPLE LIVING WITH HIV/AIDS

Isn't it nice to experience technological advances that change the practice of medicine and improve patients' lives? HIV/AIDS, formerly almost universally fatal, can now be mostly managed, albeit not cured, similar to other chronic medical conditions. The game changer was the arrival of protease inhibitors in the mid-1990's. Soon combination-based, highly active antiretroviral therapy (HAART) became the standard of HIV care. Thanks to HAART, AIDS-related mortality has decreased by 90% and many more HIV-infected persons have been able to lead productive, working lives (see figure 1). HAART also stimulated international efforts to extend HIV treatment to the developing world, such as the President's Emergency Plan For AIDS Relief (PEPFAR), as it became increasingly indefensible to have widespread disparities in access to life-saving medications. The flip side, however, is that increased survival increases the importance of other health risks shared by both HIV- and non-HIV-infected persons. Notably, HIV-infected persons are at high risk for coronary heart disease (CHD). In this issue, we look more closely at this risk, and what needs to be done to prevent CHD in people with HIV.

HOW CHD RISK IS ELEVATED IN HIV-INFECTED PERSONS

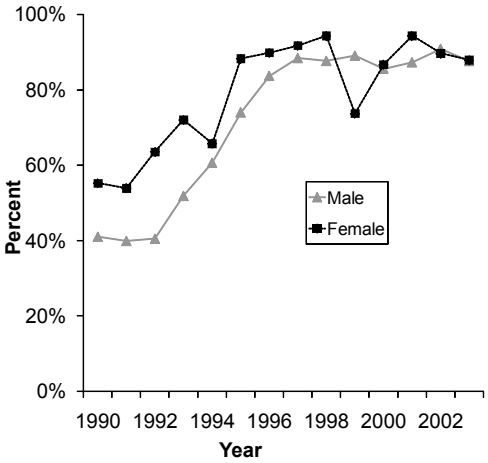
Higher risk for CHD in HIV-infected persons is mediated through several pathways. First, 50–70% of HIV-infected persons smoke cigarettes, increasing risk for not just CHD, but also all of the other "usual suspects" of tobacco-related diseases, such as lung cancer and COPD.[1] Second, HIV and HAART can cause and/or exacerbate dyslipidemia.* Early in untreated HIV, for example, HDL ("good cholesterol") levels often decline, but don't quite return to premorbid levels with HAART.[2] On the other hand, some anti-retrovirals, such as ritonavir-based regimens, can increase triglycerides. Finally, HIV infection itself, especially with low CD4 count, increases risk of CHD independent of any effect on lipids.[3] How much CHD risk is associated with HIV? In one analysis of health records from Boston, the relative risk for developing acute MI in HIV-infected persons was 1.75 (95% CI: 1.51-2.02), compared with non-HIV infected, after adjusting for age, gender, race, and diagnoses of hypertension, diabetes, and dyslipidemia.[4] The authors, however, were unable to adjust for differences in smoking, which might have accounted for some of the increased risk

* The term *dyslipidemia* includes low HDL, which increases CHD risk, and is preferable to *hyperlipidemia* in denoting deleterious lipid patterns.

MEDICAL MONITORING PROJECT IN OREGON

Oregon is one of 20 states participating in the Medical Monitoring Project (MMP). Begun in 2007, MMP is a CDC-funded survey of HIV-infected persons currently receiving health care, and looks at patient behaviors, clinical outcomes, and quality of care. It includes both medical record abstractions and in-person patient interviews. Through MMP, we are able to answer questions as varied as: *What percentage of HIV-infected persons take their medications as prescribed? How many received a flu shot last year? How often are HIV-infected males using condoms during sexual activity?* MMP provides important public health surveillance data that can identify and understand health problems in HIV-infected persons, and evaluate public health prevention and treatment programs. Unlike HIV cohort studies, which enroll patients and follow them longitudinally for years, the MMP is a cross-sectional survey of a new sample of HIV-infected patients each year.

Figure 1. Percent of people with HIV/AIDS reported surviving five years or more by year of diagnosis, Oregon, 1990–2003



CHD RISK FACTORS IN OREGON HIV-INFECTED PERSONS

We looked at 2007–2008 Oregon MMP data to determine the extent of CHD risk factors in HIV-infected persons. The average age of the 539 patients in the survey was 46 years, and the average length of time between HIV diagnosis and patient interview was 12 years. The most common CHD risk factors included smoking (46% of the participants), low HDL (55%), and elevated triglycerides (42%) (see figure 2, *verso*). The prevalences of high total cholesterol (9%) and obesity (17%) were actually lower than non-HIV-infected persons with similar age/sex demographics. The low prevalence of obesity was not because of weight loss from advanced HIV infection, as weight was probably not attributable to associated with markers of advanced HIV infection, such as low CD4 or high viral load. Other CHD risk factors present among the survey participants included diabetes (11%) and hypertension (28%); 5% already had a diagnosis of CHD (see figure 2, *verso*).

The high prevalence of smoking is especially worrisome. Smoking prevalence among Oregon HIV-infected

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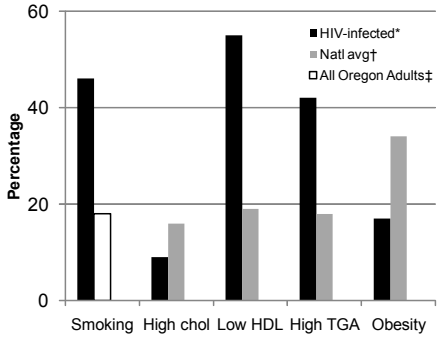
Figure 2. Coronary heart disease risk factors among people receiving health care for HIV, Oregon, 2007–2008



Definitions:
High chol: ≥240mf/dL
Low HDL: <40mg/dL
High TGA: ≥200mg/dL
Obesity: BMI ≥30

Sources:
* Oregon MMP (2007–08)
† National Center for Health Statistics
‡ Oregon Behavioral Risk Factor Surveillance System

persons (46%) is more than 2½ times as high as adults statewide (18%). We found particularly high smoking prevalence among those with lower education (53% among those with less than college degree), age <45 years (55%), history of injection-drug use (64%), and binge drinking (67%). Among those with preexisting CHD or diabetes, who are at highest risk for myocardial infarction and CHD death, 38% smoked!

BOTTOM LINE

The good news with HAART is that HIV-infected persons are surviving longer than ever since the HIV epidemic was first identified. The bad news is that the longer survival has unmasked health risks that pose barriers to further extending survival. Our challenge is to aggressively assess and manage risk factors for CHD in the HIV-infected population, particularly smoking and dyslipidemia (see box). Additional research is particularly needed to overcome barriers to quitting smoking that are *specific* to HIV-infected persons. It would be tragic if our collective efforts to manage HIV infection with HAART were sabotaged by preventable CHD events.

Help for Smokers with HIV/AIDS

- **The Oregon Tobacco Quit Line (800-QUIT-NOW):** Anyone can call the Quit Line for assistance. Clients of Oregon's CAREAssist Program—which helps people living with HIV/AIDS pay for insurance premiums and pharmaceuticals—are eligible to receive free augmented services including five counseling calls and nicotine replacement therapy. Oregon's Quit Line services are tailored to callers'needs, and the counselors receive cultural awareness and competency trainings.
- **Oregon's CAREAssist Program:** CAREAssist pays for nicotine replacement therapy, including pharmacotherapies (bupropion or varenicline) if the client's insurance policy does not cover them. If your patient is not already enrolled, contact CAREAssist in the Health Division's HIV Care and Treatment Program (800-805-2313) to speak with a caseworker for assistance with smoking cessation in patients with HIV.
- **Clinicians** play an important role in recognizing the need for smoking cessation and referring smokers to the Quit Line and/or prescribing pharmacotherapies. HIV-positive patients not receiving assistance from the Quit Line or CAREAssist may also be able to receive some services from through private insurance plans, employee health programs, and/or the Oregon Health Plan.

FOR MORE INFORMATION

Additional information on the Oregon MMP, including a summary report on the first year of patient interview data (2007), can be found at the Oregon Public Health Division's HIV Data and Analysis website at *www.oregon.gov/DHS/ph/hiv/data/MMP/program.shtml*

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