

Chronic Hepatitis C: Silent Intruder, Insidious Threat

A great irony of human ecology is that whether homeless or not, people are themselves home to legions of microbe families which flourish at their hosts' expense. Among the more insidious of these uninvited guests is the hepatitis C virus (HCV), first identified as a distinct, blood-borne pathogen in 1988.¹ HCV can lie dormant for decades before awakening to wreak havoc through cirrhosis or hepatocellular carcinoma. No vaccine is yet available to prevent hepatitis C.

EPIDEMIOLOGY. Though rare in its acute form, hepatitis C virus is the most common chronic bloodborne infection in the United States. Nearly four million Americans (1.8%) are estimated to be chronically infected with HCV.¹ Although the incidence of HCV infection is declining in the general population, its prevalence remains high in particular subpopulations; once contracted, the virus is extremely tenacious because it keeps mutating.³ Prevalence of the chronic infection is highest among black males, aged 30–49 years.¹

Persons with HCV infection have an 85% chance or better of developing a chronic infection; 70% of those with chronic HCV eventually develop chronic liver disease; and 40% of all chronic liver disease in the United States is HCV-related, resulting in 8,000–10,000 deaths each year. HCV-associated end-stage liver disease is the most frequent indication for liver transplantation.¹

Since HCV-infected persons can remain asymptomatic for 20–30 years, many are unaware of their condition, complicating infection control and prevention of ultimately life-threatening sequelae. Consequences of chronic HCV are particularly serious for persons with HIV infection or liver disease of other origins. In hosts co-infected with HIV (approximately 40% of all HIV-positive individuals), chronic hepatitis C can hasten full-blown AIDS and death.⁶

TRANSMISSION. Hepatitis C is primarily transmitted through direct, percutaneous exposure to infected blood. Today it is rarely contracted from blood transfusions or organ transplants—the main sources of HCV transmission before 1985—thanks to more stringent screening of blood donors and donated blood since then.¹

CURRENT SOURCES OF HCV INFECTION:¹

(90% of reported cases in the U.S.)

- **Injecting-drug use (IDU)** (60%) – through sharing of contaminated syringes, needles or drug paraphernalia. HCV infection is acquired rapidly after IDU; only one or two instances of shared needles can result in infection.
- **Sexual exposures** (≤ 20%) – from an infected partner or multiple partners; persons with HIV or other STDs are at higher risk.
- **Other known exposures** (10%) occupational, hemodialysis, nonsexual household, perinatal.

In the remaining 10% of cases without an identifiable source of infection, low socioeconomic level is an associated risk factor.

Prevalence of HCV infection among health-care workers is no greater than in the gen-

eral population. The average incidence of anti-HCV seroconversion after unintentional needle sticks or sharps exposures from an HCV-positive source is 1.8% (0%–7%). HCV transmission from an infected health-care worker to patients is rare.¹

SCREENING. Routine HCV screening is recommended only for persons most likely to be infected, according to these risk factors:^{2,3}

- ever injected illegal drugs;
- received clotting factor concentrates (for hemophilia) produced before 1987, ever on long-term hemodialysis, persistently abnormal alanine aminotransferase (ALT) levels;
- received blood transfusions or organ transplants before July 1992 or known to be from an HCV-positive donor;
- exposed to HCV-positive blood through needle sticks, sharps or mucosal exposure (e.g., splashes to the eye); or
- children born to HCV-positive women.

DIAGNOSIS. A variety of tests are useful in the diagnosis of hepatitis C infection:^{3,4}

- **Serologic assays:** enzyme immunoassay (EIA) for routine detection of HCV antibody (anti-HCV) in asymptomatic persons; supplemental antibody testing (RIBA), recommended for all positive EIA results.

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- **Nucleic acid detection:** reverse transcriptase polymerase chain reaction (RT-PCR) techniques to detect HCV RNA; can identify HCV infection within 1-2 weeks after exposure to virus, before onset of ALT elevations or appearance of anti-HCV.

None of these assays can differentiate acute, chronic or resolved HCV infection; however, chronic disease is suggested by a persistently elevated ALT level.³

TREATMENT. To date, combination therapy with interferon and ribavirin is thought to be the most promising initial treatment for chronic hepatitis C.⁵ Antiviral therapy is expensive, has toxic side-effects, and results in a favorable, long-term response in only a

minority of patients.² Although all persons with chronic HCV are potential candidates for this treatment, it is clearly recommended only for those between 18 and 60 years of age who demonstrate high risk for cirrhosis on ALT/RNA tests and liver biopsy.²

ANTIVIRAL THERAPY IS NOT RECOMMENDED FOR PERSONS WITH THESE CHARACTERISTICS:¹

- persistently normal ALT levels;
- advanced cirrhosis;
- actively engaging in substance abuse (should be discontinued ≥ 6 months before treatment);
- major depressive illness, cytopenias, hyperthyroidism, renal transplantation, pregnancy or evidence of autoimmune disease.*

*Some clinicians now recommend antiviral therapy for patients co-infected with HCV and HIV.⁶

Numerous research programs are underway to develop more effective antiviral therapies and other treatment alternatives for chronic hepatitis C. Iron reduction, antioxidants and anti-inflammatory agents, hydrophilic bile salts, cytokines and other immunomodulating agents are among the modalities under investigation.²

Until more is learned from this research, clinicians are advised to focus on primary prevention of new HCV infection and on secondary prevention of liver and other chronic disease in patients already infected. Professional and public education, ongoing surveillance and research to improve prevention methods are also essential elements of a comprehensive strategy to contain the damage inflicted by chronic hepatitis C.¹

RESOURCES:

1. **CDC.** "Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease," MMWR 1998;47 (No. RR-19):3(1-33): <http://www.cdc.gov/ncidod/diseases/hepatitis/c/>; for back issues of MMWR @ \$5 per copy, call 781/893-3800, ext. 1199; or contact your local health department for a free copy.
2. **NIH.** "Management of Hepatitis C": Consensus Conference Statement Online 1997 March 24-26;15(3):1-41: http://odp.od.nih.gov/consensus/cons/105/105_statement.htm. Conference presentations include **Bonkovsky HL.** "Other options for treatment of hepatitis C": <http://www.hepnet.com/nih/bonkov.html>.
3. **Moyer LA et al.** "Hepatitis C": Part I (Routine serologic testing and diagnosis), Part II (Prevention counseling and medical evaluation), *Am Fam Physician* 1999 Jan 1;59(1):79-88, 91-92; 349-54, 357.

4. **APIC.** Position paper: "Hepatitis C exposure in the health care setting," *Am J Infect Control* 1999; 27:54-5. Reprint requests: APIC, 1275 K St. NW, Ste 1000, Washington, DC 20036.
5. **McHutchison JG et al.** "Interferon alfa-2b alone or in combination with ribavirin as initial treatment for chronic hepatitis C," *N Engl J Med* 1998 Nov 19;339(21):1485-1492; *Medscape Gastroenterology*, 1999: <http://www.medscape.com>.
6. **Dieterich DT.** "What are the potential interactions and clinical management problems of patients who are co-infected with HIV and chronic hepatitis?" 8th Clinical Options in HIV Symposium on Hepatitis & HIV, *Medscape HIV/AIDS* 4(2), 1998.
7. **Hepatitis Foundation International:** 800/891-0707; **American Liver Foundation:** 888/443-7222; **National Digestive Diseases Information Clearinghouse:** 301/654-3810. ■

What HCH Clinicians Say about Hepatitis C

Although there are few data about hepatitis C specific to the homeless population, HCH clinicians report anecdotally that they are seeing a rapid increase in the number of chronic cases, in part because they are screening more patients. Clinicians confirm that the incidence of HCV infection is higher in practices serving a larger proportion of injecting-drug users or HIV-infected individuals.

Mary Tornabene, RNP, is a family nurse practitioner who provides health care to homeless people at Chicago Health Outreach, Inc. Although she doesn't know the numbers, her clinic is seeing a lot more cases of chronic HCV. "A number of people who come here are injecting-drug users," she says. Many of her clients with HCV infection are also HIV-positive. Often they are sicker with hepatitis C (at various stages of cirrhosis) than with HIV. Only HIV-infected clients or persons with abnormal liver function tests are screened for HCV.

Tornabene sees a broad spectrum of liver disease secondary to HCV infection, and uses more palliative than curative treatment

measures to relieve the discomfort of her patients. Since viral RNA tests are very expensive, she can't order them routinely unless questioning a diagnosis, especially for clients without health insurance. If clients have medical benefits, they can be referred to a liver specialist. The many who don't have medical benefits are referred to the county hospital for treatment.

Two of her clients are awaiting referrals for HCV treatment now. One of them, a 34-year-old former injecting-drug user with a positive TB skin test and no health insurance, is waiting to be enrolled in the Cook County Neighborhood Referral Program. "It can take 1-5 months for such patients to be seen because the county hospital is so backed up, the system is so overloaded," says Tornabene.

Linda Dziobek, RN, Director of Health Care Services for Traveler's Aid Society of Rhode Island, reports that her clinic in Providence began HCV screening only for symptomatic or high-risk clients a year ago. Since then, anti-HCV has been identified in about 1%–2% of persons screened, most of whom are injecting-drug users or have a past history of IDU (only 2%–3% of the population seen at this clinic). In contrast, a local community methadone clinic in Providence reported a 93%–95% rate of anti-HCV in the first year of universal screening. Treatment of these patients is problematic because methadone and antiviral therapy can be incompatible.

“Almost 85% of our clients found to have hepatitis C antibodies also have hepatitis B [HBV] antibodies,” says Dziobek, whose speciality is infection control. “We are seeing an increase in snorting

“Because these services are provided as uncompensated care, we try to use discretion in referring patients,” adds Dziobek, who admits that HCV screening and treatment of homeless clients are driven more by available resources than by clinical need. “HCH projects need an advisory group and a plan to work on this particular issue,” she declares. Her project plans to establish a clinical leadership committee to determine the incidence of and treatment protocols for hepatitis C.

Dziobek also stresses the importance of educating health-care workers about the risk and prevention of occupational transmission of all blood-borne pathogens. “HCH projects should develop a protocol for occupational exposures that includes HCV testing of both the source and the infected person in post-exposure follow-up.”

WHAT HCH CLINICIANS CAN DO TO MANAGE THE CARE OF HCV-INFECTED PATIENTS WHO ARE INELIGIBLE FOR ANTI-VIRAL THERAPY:

1. Prevent transmission of HCV to uninfected persons.

- Offer risk reduction counseling to illegal drug users and clients engaging in high-risk sexual practices.
- Warn against sharing needles, razors, combs and toothbrushes.
- Provide bleach kits to sterilize needles and drug paraphernalia.
- Advise infected clients to use latex condoms and to inform sex partners, whether multiple or single, of their risk.

1. Prevent serious liver and other disease in HCV-infected persons.

- Advise clients to stop drinking; provide access to addictions treatment; after six months of sobriety, refer for antiviral therapy.
- Immunize high-risk clients against hepatitis A and B, which can increase morbidity and mortality for persons with hepatitis C. (Cost may be a barrier for clients over 18.)
- Consider other causes of liver disease; treat commonly co-occurring medical conditions (e.g., arthritis, porphyria cutanea tarda (PCT), cryoglobulin anemia, nephropathy, thrombocytopenia).

— Ed Farrell, MD

heroin among runaway youth in our project,” she remarks. “The other day, we saw an asymptomatic 20-year-old client with a history of injecting-drug use. He was screened for HIV, hepatitis and TB. We’re awaiting results of an RT-PCR test before deciding whether to refer him for treatment.”

A local community hospital does routine bloodwork for Traveler's Aid. This hospital sends a courier to pick up blood samples for analysis and reports results the next day, at no charge to the HCH clinic or its patients. Asymptomatic HCV-infected clients who are injecting drugs are referred to the local needle exchange program and counseled about harm reduction. Those who manifest clinical symptoms—e.g., jaundice or otherwise unexplained fatigue, abdominal pain, loss of appetite, nausea, vomiting—are referred to a university hospital for further diagnostic testing and follow-up in the GI clinic. Thus far, about half of these patients have been referred for interferon therapy; only those who seem able to adhere to the regimen are accepted for treatment. Patients undergoing antiviral therapy require stable shelter because side effects from the treatment alone can be debilitating. Homeless people with hepatitis C typically have limited access to fluids and rest, which exacerbates both HCV disease symptoms and therapeutic side effects, explains Dziobek.

Ed Farrell, MD, Medical Director of the Stout Street Clinic, Colorado Coalition for the Homeless in Denver, estimates that of approximately 6,000 clients seen there each year, at least 900 (15%) probably have HCV infection. “Clients who are at high risk for hepatitis C or with unexplained elevation of their liver function tests are screened for both HCV and HBV,” says Farrell.

Clients with symptomatic hepatitis C are referred to the county hospital, which will only treat stable patients who have been “clean” for six months. “The hospital uses only combination therapy with interferon and ribavirin because recent studies indicate clearly that this treatment is more effective than interferon alone,” notes Farrell. Homeless clients referred there for treatment return to the HCH clinic for follow-up primary care.

In a recent study, 250 homeless people at a soup kitchen in Baltimore were tested for hepatitis C. Principal investigator **Fred Osher, MD**, Director of Community Psychiatry at the University of Maryland, used this cohort as a comparison group for a multi-site study of viral infections in severely mentally ill (SPMI) patients, many of whom had substance abuse disorders. Early study results indicate a high incidence of HCV, HBV and HIV/AIDS in both comparison and SPMI groups. Forty percent of the homeless

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What HCH Clinicians Say..., concluded:

group tested positive for HCV. [Interested parties may call Dr. Osher at 410/328-3414 for further information about these research findings, which are expected to be published this year.]

“We are at an early stage in the process of developing national standards for HCV testing and treatment protocols,” observes Osher. “Today there is no community standard of care; we need to develop one and test it. We also need comprehensive strategies to address continued high-risk behaviors,” he adds. Dr. Osher thinks treatment of HCV infection should be an option for addicted homeless people, particularly if these therapies prove to be effective. “The Health Care for the Homeless Program has a legislative mandate to work with addictions,” Osher reminds us. “Treatment adherence is not an overwhelming impediment for this population.”

Dr. Osher hopes that enhanced public awareness of hepatitis C will create momentum for better understanding of the HCV epidemic in impoverished populations, which he describes as “an evolving public health nightmare.” “Clinicians were reluctant to screen patients for hepatitis C before treatment was available,” he explains. “Now that technological advances are resulting in promising treatment alternatives, we have the opportunity to develop both prevention and intervention strategies.” ■

Have You Registered for the HCH Conference?

You should have received a registration brochure for the 1999 National Health Care for the Homeless Conference and Symposium, “New Solutions to Old Problems,” sponsored by the Bureau of Primary Health Care/HRSA. If not, please call Maggie Castoires, John Snow, Inc., at 617/482-9485 for information about how to register. The Conference will be held April 29–May 1 in Washington, DC, at the Hyatt Regency on Capitol Hill. Sixteen of the 44 workshops offered will focus on clinical issues relevant to health care delivery to homeless people.

Please note that the registration form provides an opportunity to renew your membership in the HCH Clinicians’ Network for only \$25. We strongly encourage you to renew your Network membership when you register for the HCH conference!

New Web and E-mail Addresses

The National Health Care for the Homeless Council and the HCH Clinicians’ Network have a new web address and new e-mail addresses. Please make a note of them:

- Web address: **<http://www.nhchc.org>**
- Network e-mail: **Network@nhchc.org**
- Council e-mail: **Council@nhchc.org**

We are grateful to Telalink (www.telalink.net) for sponsoring our website.

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