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HVDP

Homeless Veterans Dental Program

Hepatitis C in the Veteran Population

Tracy King, RDH, MS

The Hepatitis C Virus (HCV) is the most common chronic blood-borne infection in the United States and is four times more prevalent among Americans than AIDS. An estimated 3.9 million (1.8%) Americans have been infected with HCV. The majority of those infected with HCV are chronically infected and may be unaware of their infection because they lack clinical signs and symptoms of illness. Furthermore, 20-40 percent of those affected by the virus will develop end-stage liver disease if HCV infection goes untreated. HCV associated end-stage liver disease is reported as the most frequent indication for liver transplantation among adults. Chronic liver disease is the tenth leading cause of death among adults in the United States. Population-based studies report that 40 percent of chronic liver disease is related to HCV, resulting in an estimated 8,000-10,000 deaths each year.

The Veterans Health Administration (VHA) estimates that 6.6% of veterans are infected with HCV - a rate more than three times the national average. The highest risk group for hepatitis C within the veteran population consists of Vietnam-era Veterans. Estimates of HCV infection among this group range from 18 to 20 percent. Vietnam-era Veterans accounted for 64% of all positive HCV tests conducted nationally within VA Medical facilities. Legislative efforts are underway to establish a comprehensive program for testing and treatment of hepatitis C and to establish service-connection for veterans with hepatitis C.

Current research shows a decline in HCV infection within the military population. A study conducted by Hyams and colleagues indicated that after the introduction of serological testing for HCV in 1991, hospitalizations for acute hepatitis C significantly increased. In 1995, the rate of hospitalization for acute hepatitis C began decreasing and continued to decline. The authors suggest that several factors are responsible for their findings:

- Changes in hospitalization criteria and an increase in outpatient clinical care.
- Randomized drug testing of all military personnel.
- Testing of all prospective military recruits for illegal drugs and HIV.
- Implementation of universal precautions among medical and laboratory personnel.
- Rare transmission through transfusion of blood products since 1992.

Today, injecting drug use continues to be the primary risk factor for Hepatitis C, accounting for 60 percent of HCV transmission. While there are no estimates of HCV prevalence among homeless veterans, we can predict that this group is more likely to be at risk for HCV than the general and veteran populations due to increased risk behaviors. Therefore, it is important that we understand the disease and its effects on the body in order to provide appropriate treatment and improve the quality of life of those infected.

"The Veterans Health Administration (VHA) estimates that 6.6% of veterans are infected with HCV - a rate more than three times the national average."

Risk Factors for HCV:

- Vietnam-era Veteran
- Transfusion of blood or blood products prior to 1992
- Injection Drug Use
- Blood exposure
- Multiple sex partners (>10)
- Hemodialysis
- Tattoo or repeated body piercing
- Intranasal cocaine use
- Unexplained elevated ALT or liver disease
- Alcohol abuse (>50g/day 10+yrs)

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Hepatitis C—An Oral Link?

Gretchen Gibson, DDS, MPH

The obvious answer to this question is yes, in that all systemic disease should be taken into consideration when treating the oral cavity. As noted in the earlier article, many of these patients will present with chronic liver disease and failure in the later stages. Concerns for these patients include potential bleeding problems as well as medication dosing due to impaired liver clearance. Patients exhibiting liver failure should be considered for a PT, PTT , Liver Function Tests (LFT), and CBC prior to surgical procedures.

There is however a growing body of evidence concerning oral lesions and symptoms that may be directly attributable to Hepatitis C infection. Several studies have found evidence of Sjogren's like symptoms including dry mouth in HCV infected patients. Sjogren's syndrome is an inflammatory infiltration of the secreting glands, such as the lacrimal glands in the eyes and salivary glands in the mouth. This autoimmune disease can be found with or without other connective tissue diseases.

"...HCV-RNA is found in saliva."

In a study by Loustaud et al in 2001, 62% of 45 HCV positive patients presented with dry mouth and/or dry eyes. Nearly 50% of the 45 had a positive minor salivary gland biopsy for the lymphocytic infiltration that is diagnostic for Sjogren's syndrome (SS). They felt that based upon their findings along with others, chronic HCV infection may account for a subgroup of patients with SS. Interestingly, the infiltration of lymphocytes noted in the minor salivary gland biopsies had a statistically positive correlation with liver disease activity. And finally, Arrieta et al demonstrated through salivary gland biopsy, that HCV infects and replicates in the epithelial cells of the salivary glands of anti-HCV positive patients who present with SS or sialadenitis.

Another possible oral manifestation of chronic HCV infection is oral lichen planus (OLP). Findings concerning the relationship of OLP to HCV infection have been very mixed. Prevalence rates of OLP in patients chronically infected with HCV have ranged from 20-67% internationally, with the highest prevalence found in Japan in a 1997 study by Nagao et al. Other studies have found no notable increase in OLP in HCV infected patients, and in reverse, one study in the US (Eisen, 02) including 195 OLP patients, found none had either elevated liver function or were HCV positive. Several hypotheses for this variation in results are; the inclusion of regional or geographic factors; inclusion of lichenoid type lesions that are not OLP, such as drug or dental related lichenoid reactions; and a possible age specific association between the two diseases which has not been pursued.

In 1999, Coates et al published an Australian study in which one of the aims was to determine the oral health status of HCV positive patients compared to a similar age, gender and socio-economic status group. They noted that the caries experience (DMFT) of the HCV positive group was statistically worse than the HCV negative group. Periodontal health could not be compared due to study design, but was in general noted to be poor among the HCV positive patients.

Although it appears unlikely that saliva is a means of viral transmission, HCV-RNA is found in saliva. The levels of the virus in saliva have been positively correlated in several studies to plasma levels of HCV-RNA. At this point, it appears that most studies agree that a salivary test is sensitive enough for epidemiological use, although its use for diagnostic purposes is still questionable in some of the research findings.

Although we cannot say conclusively at this time that any of these lesions or disease patterns are directly associated with HCV infection, it is also impossible to discount these findings without further investigation. As noted in other articles in this newsletter, veterans and specifically homeless veterans have higher rates of HCV infection than the overall general population. Becoming aware of the possibility of these increased risks is the first step in better diagnosis and treatment of the HCV positive patient.

Assessment of the HCV Patient:

1. Determine stage of disease and liver damage.
2. Consider potential bleeding problems.
3. Adjust prescribed medication dosage if liver impairment.
4. Evaluate salivary flow and monitor for lesions associated with OLP.

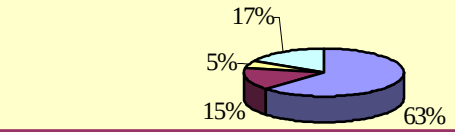
Hepatitis C: Occupational Exposure and Transmission

Tracy King, RDH, MS

In the 1980's, the emergence of HIV/AIDS resulted in an increased compliance with infection control guidelines among healthcare workers (HCW). The concept of universal/standard precautions was also established by the Centers for Disease Control and Prevention (CDC) to prevent disease transmission in healthcare settings. Historically, Hepatitis B Virus (HBV) infection has been the most common blood-borne pathogen to affect HCW. However, with the implementation of universal precautions and the administration of the HBV vaccine, HBV sero-prevalence rates among HCW have dramatically declined. Although disease transmission in the healthcare setting has been primarily associated with HBV, HIV has been the catalyst for practice change.

With the decreasing threat of HBV, the Hepatitis C Virus (HCV) has become a primary concern for those who work in healthcare settings. HCV is primarily transmitted through large or repeated direct percutaneous exposures to blood. Although the rate of HCV transmission among HCW is low, those who are exposed to blood in the work place are at risk for contracting blood-borne pathogens. Eighty percent of exposures to HCW occur through needle sticks. Other tasks commonly reported at the time of exposure include: disposal, cleaning, recapping needles, and handling trash. A longitudinal study conducted by Lanphear and colleagues examined occupational exposures and transmission of HCV among HCW. Clinical hepatitis and blood and body fluid exposures among HCW at the University of Cincinnati Hospital were recorded from January, 1980 to December, 1989. During this 10 year period, an annual average of 491 exposures to blood and body fluid were reported. The majority of those exposures were from needle stick injuries (Figure 1). Of the 491 exposures, 176 involved source patients with HCV. The highest rate of reported exposure to HCV occurred in the emergency department where 23 of 112 exposures were to anti-HCV positive source patients compared with 153 of 1,275 exposures from all other settings. This study followed 72 HCW who were exposed to HCV for a period of 5 or more months. HCV sero-conversion was reported among 3 of the 72 in which all 3 exposures were through needle sticks.

Figure 1: Exposures Reported by HCW During a 10-year Study



Current research shows that HCW face a 20 to 40-fold risk of contracting HCV from an accidental needle stick when compared to the risk of contracting HIV. Although most HCV transmission associated with a needle stick is acquired through large-bore needles, the high frequency of sharps injuries in the dental setting poses a potential risk for the dental HCW. A more recent concern in dentistry, has been the transmission of HCV through saliva. Even though HCV-RNA is detectable in saliva, studies have not supported saliva as a source for HCV transmission.

Percutaneous injuries and mucous membrane exposure to blood and other body fluids poses the single greatest risk of disease transmission from patient to HCW. Prevention of transmission of any blood-borne pathogen begins with the practice of universal/standard precautions and the implementation of recommended infection control guidelines. The use of exam gloves reduces the risk of disease transmission in needle stick exposures by 50 percent. Since the primary method of exposure in the healthcare setting is through needle sticks, safety devices and new products have been developed to reduce these types of injuries. Implementation of these products and universal immunization of HCW with the HBV vaccine is imperative in reducing the risk of disease transmission from patient to HCW.

Over the last two decades, attitudes of healthcare providers towards infection control and treatment of patients with infectious diseases have changed dramatically. Although dentistry has come a long way in disease prevention, patients with infectious diseases continue to be treated by some HCW with different infection control methods. In national surveys of dental HCW, common infection control attitudes and practices reported regarding the treatment of HIV/AIDS or Hepatitis patients were: they should be 1) treated by double-gloving, 2) treated using different sterilization and disinfection practices, 3) treated in an isolated operatory, and 4) referred to public health clinics for dental treatment.

Healthcare provider attitudes will affect the level of care provided to patients who report a history of infectious diseases. The risk of disease transmission in the healthcare setting is very low and should not influence the treatment choices of health professionals when providing care for patients with infectious diseases, unless medically indicated. Due to the number of veterans infected with HCV, it is important that HCW within VA facilities understand the means of disease transmission in order to provide optimal treatment for all veteran patients.

Rate of Disease Transmission among HCW*

HBV	HCV	HIV
1 in 6	1 in 20	1 in 300

*Transmission depends on amount of viral load in blood which enters exposed person; post-exposure prophylaxis within 2-4 hrs of incident is also key in disease transmission.

Hepatitis A,B,C,D,E & G—What's the Difference?

Tracy King, RDH, MS

Hepatitis A Virus (HAV)

Characteristics:	Non-enveloped single-stranded RNA *Picornaciridae*
Epidemiology:	U.S. Prevalence 30%; Prevalence by etiology: Unknown 50%, Daycare 14-16%, Travel 4-6%, Food or waterborne outbreak 2-3%.
Incubation:	15-40 days
Onset:	Acute hepatitis; Jaundice in 50-80% of adults but rare in children.
Outcome:	No chronic liver disease; prolonged cholestesis and relapses are possible; fulminant may be fatal.
Transmission:	Fecal-oral; poor sanitation
Carrier state:	No
Mortality:	0.1-0.2%
Management:	Immune globulin for preventive measure of people in contact with those infected; rest; no food handling.

Hepatitis B Virus (HBV)

Characteristics:	Double-stranded DNA *Hepadnaviridae*
Epidemiology:	U.S. Prevalence 0.5% Risk factors: multiple sexual partners, injection drug use, homo-sexual males, persons from endemic regions, HCW, hemodialysis patients.
Incubation:	50-180 days
Onset:	Usually insidious; Acute and chronic hepatitis; Jaundice 30-50% in adults.
Outcome:	Chronic liver disease 2-8% of adults; long-term sequellae: cirrhosis and liver cancer.
Transmission:	Parenteral, sexual contact, perinatal
Carrier state:	Yes (5-10%)
Mortality:	1-2%; higher in adults >40 yrs old
Management:	Acute: HBV immune globulin and vaccination for susceptible contacts; follow for clearance of surface antigen. Chronic: Check e antigen to assess infectivity and prognosis (e antigen -, e antibody + generally means healthy and noninfectious, even when carrier of HBsAg); consider interferon, lamivudine, or famcyclovir

Hepatitis C Virus (HCV)

Characteristics:	Enveloped single-stranded RNA *Flaviviridae*
Epidemiology:	U.S. Prevalence 1.8% Risk factors: Injection drug use, cocaine use, hemodialysis patients, transfusion recipients prior to 1992, HCW, multiple sexual partners, multiple tattoo and/or body piercing.
Incubation:	1-5 months
Onset:	Usually insidious; Acute and chronic hepatitis; Jaundice 20% acute cases.
Outcome:	Chronic liver disease 85% of adults; long-term sequellae: cirrhosis and hepatocellular cancer in up to 20% of persistent cases at 25-30 yrs.
Transmission:	Usually parenteral, perinatal, sexual contact less common
Carrier state:	Yes (>85%)
Mortality:	1-2%
Management:	Detection of HCV RNA and antibody (ELISA & RIBA); consult specialist re: liver biopsy; follow ALT and HCV RNA levels; drug therapy of choice: interferon alpha and ribavirin.

Hepatitis D Virus (HDV)

Characteristics:	Non-enveloped single-stranded RNA *Satellite*
Epidemiology:	Risk factors same as HBV; Endemic to Mediterranean regions
Incubation:	21-90 days
Onset:	Co-infection: acute infection with HBV; Super-infection: acute HDV infection with chronic Hepatitis B.
Outcome:	May cause persistent infection (80% super-infection, <10% co-infection). Long-term sequella as with HBV, but more severe/accelerated.
Transmission:	Bloodborne; parenteral, sexual
Carrier state:	Yes
Mortality:	2-20%
Management:	same as with HBV

Hepatitis E Virus (HEV)

Characteristics:	RNA *Caliciviridae*
Epidemiology:	Endemic in most developing countries; only one documented case originated in the US.
Incubation:	2-9 weeks
Onset:	Acute hepatitis; Jaundice 30-80% of adults
Outcome:	None reported
Transmission:	Fecal-oral; waterborne
Carrier state:	No
Mortality:	1-2% in general population; 20% pregnant women
Management:	Immunoglobulin containing HEV antibodies provides some protection against infection of contacts, but secondary transmission is uncommon.

Hepatitis G Virus (HGV)

Characteristics:	Enveloped RNA, same as GB virus-C *Flaviviridae*
Epidemiology:	Risk groups same as HCV
Incubation:	unknown
Onset:	Frequent co-infection, particularly with HCV; not reported to affect clinical course in patients with HAV, HBV, or HCV; acute disease spectrum unknown; fulminant hepatitis.
Outcome:	Persistent infection in 15-30% of adults; long term significance are unknown.
Transmission:	Parenteral, perinatal
Carrier state:	Yes
Mortality:	?
Management:	No documented treatment.

The Homeless Veterans Comprehensive Assistance Act of 2001

Gretchen Gibson, DDS, MPH

Public Law 107-95 (PL107-95) has moved dental an exciting step forward in becoming an integral part of the homeless rehabilitation team. This law expands VA dental eligibility authority, to provide dental services considered to be medically essential to a veteran enrolled for care in the VA's Homeless programs.

PL107-95 stipulates that outpatient dental services may be provided to veterans enrolled for care in various VA homeless programs. This care is targeted to patients who are enrolled and actively receiving care for a period of 60 consecutive days (either directly or through a VA contract) in the following settings:

- A domiciliary program
- A therapeutic residence program
- A community residential program which is coordinated by the VA
- Programs funded through the VA Grants and per diem

These dental services are considered medically necessary according to the wording of this law if the dental services are:

- Necessary for the homeless veteran to successfully gain or regain employment
- Necessary to alleviate pain
- Necessary for the treatment of moderate, severe or severe and complicated gingival or periodontal pathology.

These benefits are limited to a one-time course of dental care, provided in the same manner, as would benefits provided to a newly discharged veteran.

Unfortunately, at this time there is no funding provided for the dental care as specified in this new law. The Office of Dentistry worked diligently throughout the process to try to assure funding for this new eligibility, and is still working within the VA to procure any funds.

There are still steps required before a VA regulation is developed to address this new category of eligibility. VACO Health Administration Services (HAS) and the General Counsel must meet with the Office of Dentistry. After this regulation is developed, it must be published in the Federal Register for the public's comments and then responses must be formulated to these comments, along with possible revisions. So at this time, it appears that we are still months away from this regulation becoming a part of dental eligibility.

SITES TO SEE:

- *Hepatitis C sites:*
  - *http://www.cdc.gov/ncidod/diseases/hepatitis/c_training/edu/Info/default.htm*
  - *http://www.niddk.nih.gov/health/digest/pubs/chrnhepc/chrnhepc.htm*
  - *http://hopkins-id.edu/diseases/hepatitis/hav_faq.html*
- *www.nationalhomeless.org/veterans.html*
- *http://nch.ari.net/numbers.html*

  Published by the National Coalition for the Homeless, February 1999; National Estimates, Definitions, Methodology (NCH Fact Sheet #2).
- *http://aspec.hhs.gov/progsys/homeless/profile.htm*

  Profile of Homelessness; Results from a National Survey of Homeless Assistance Providers and Homeless Persons

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Helping Veterans Achieve Their Goals With A Smile

WE WANT TO HEAR FROM YOU:

- *IF YOU NEED HELP APPLYING FOR FUNDING*
- *IF YOU HAVE SUGGESTIONS, COMMENTS AND REQUESTS FOR INFORMATION*
- *IF YOU HAVE A PROGRAM OR STORY TO SHARE IN OUR NEXT NEWSLETTER*

Innovative Programs: TCOM students serve the homeless.

Christopher Ellis, MHS

When student Catherine Andrews, with the idea of starting a clinic run by students, approached assistant professor of manipulative medicine at Texas College of Osteopathic Medicine (TCOM), Michael Carnes, DO, he was very supportive. The clinic would serve as a manipulation medical clinic, which provides a caring and very gentle form of soft tissue manipulation to the homeless community of Fort Worth.

The clinic opened its doors at the Community of Hope Day Resource Center with the initial start-up of about fifteen students from TCOM's class of 2004 and with Dr. Michael Carnes as supervisor. The students used their own tables and purchased all the necessary supplies using their own money. The students devoted 3 to 4 hours one Saturday of every month to work in the clinic. During this time, the students saw about eight patients in one hour for a thirty-minute manipulative treatment.

According to Dr. Carnes, this is an excellent opportunity for the patients to feel relaxed and receive treatment that they could not afford otherwise. At the same time, it is a great benefit to the students as well. The students are given the opportunity to have hands on experience earlier in their training program.

Dr. Carnes shared the story of how students worked with a patient who, after having a fractured ankle treated, was still having problems. "They worked with him and he kept coming back and eventually was relieved of the discomfort. He was up and walking with no pain," says Dr. Carnes.

In as much as the clinic has helped to relieve the homeless people of discomfort associated with bones, joints and soft tissues, as of June 2002, it is no longer in operation. Because of safety issues with employees of the Community of Hope Day Resource Center, particularly opening on Saturdays without adequate staff, the manipulation treatment center had to close its doors. Nevertheless, the necessary steps are being taken and according to Dr. Michael Carnes, the clinic could be back providing its services as soon as November 2002.

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