



OFFICE OF DISEASE PREVENTION AND EPIDEMIOLOGY

HIV AND VIRAL HEPATITIS CO-INFECTION, OREGON

LIVER-RELATED MORTALITY IN PEOPLE WITH HIV

Approximately 15% of global deaths in people with HIV are liver-related. From 1999 through 2004 the Data Collection on Adverse Events of Anti-HIV Drugs study followed over 23,000 people living with HIV in Europe, North America and Australia. During that time, just over 1,200 of the people followed died from all causes (about 1.6% a year), about 15% from liver-related disease. Approximately two-thirds of the liver-related deaths were from hepatitis C virus (HCV) alone, 18% from hepatitis B virus (HBV) alone, and 7% from HBV and HCV co-infection.¹ In Oregon, chronic hepatitis—mostly HCV—is an increasing factor in mortality of HIV-infected people. For example, from 2006 through 2009, chronic hepatitis was among the multiple causes of death for 15 (5%) of 279 HIV-infected people who died in Oregon. As people live longer with HIV infection and detection and public health monitoring of both diseases improves, we expect this proportion to increase.

HCV-RELATED MORBIDITY IN PEOPLE WITH HIV

HCV, a blood borne infection, is endemic among people who use injection drugs, as the virus is ten times more likely to be transmitted than HIV after a single bloodborne exposure. Consequently, HCV infection is often acquired before HIV in people who use injection drugs, and it is vastly more prevalent among HIV-

OREGON HIV AND VIRAL HEPATITIS FACTS AT A GLANCE:

- At least 5% of deaths in people with HIV are liver-related, most of these from chronic hepatitis C.
- Prevalence of chronic hepatitis C among Oregonians with HIV is at least 7%, but probably much higher because of under reporting.
- Prevalence of chronic hepatitis C among Oregonians with HIV who have also used injection drugs is at least 30%.
- Chronic hepatitis C is a more severe infection in people with HIV than in people who are not HIV-infected.
- Though everyone with HIV should be periodically screened for HCV, in Oregon, about 12% are not.

infected people who have used injection drugs than among people who are thought to have acquired their HIV infection via sexual transmission. While sexual transmission of HCV is rare, it can occur. HIV infection does appear to increase risk of sexual acquisition of HCV among men who have sex with men, perhaps because of HIV-related enteropathy.²

Regardless of HIV status, HCV is not a benign infection. Few people who acquire HCV ever clear it from their blood. From 60% to 80% of individuals develop chronic

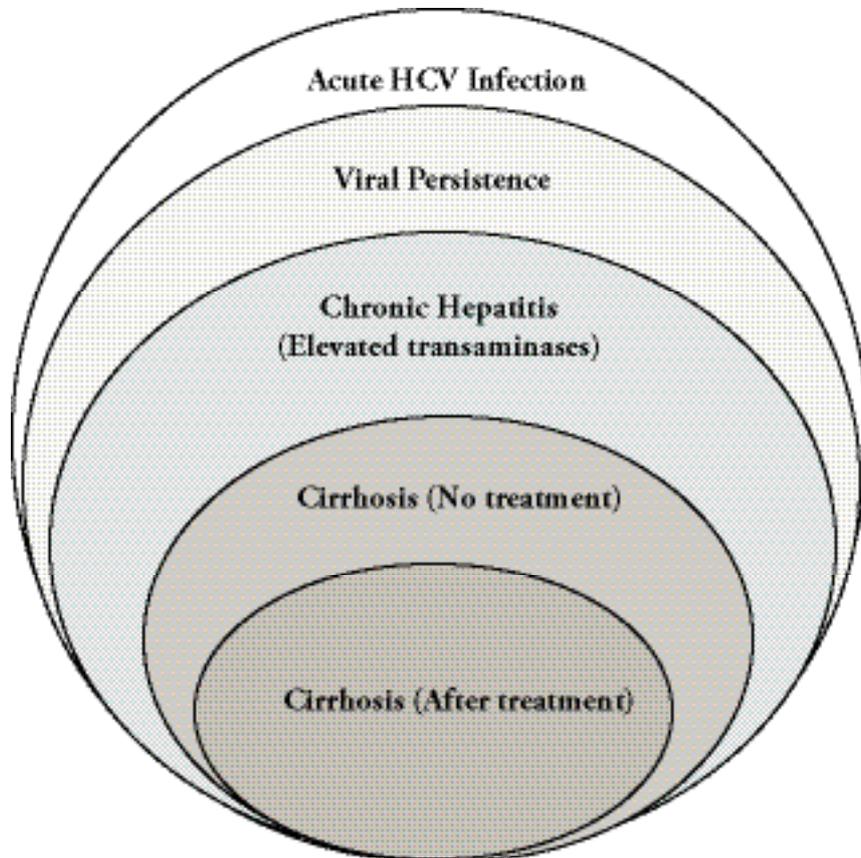
hepatitis C infection, defined by elevated blood levels of liver-related enzymes. People with chronic HCV often suffer chronic fatigue and neuropsychiatric symptoms. And, up to a third of people with chronic HCV go on to develop cirrhosis or hepatocellular carcinoma within 20 years.³

HCV outcomes are generally worse in people who also have HIV. Individuals who are co-infected with HIV and HCV are more likely to experience HCV persistence, faster progression of fibrosis, faster hepatic decomposition, and reduced expectation of sustained viral response after treatment (Figure 1).

HBV-RELATED MORBIDITY IN PEOPLE WITH HIV

Like HIV, HBV is transmitted vertically from mother to newborn, sexually, and through intravenous drug use. Because of efficient screening of the U.S. blood supply, neither is commonly transmitted anymore via transplants or transfusion. Worldwide, up to 90% of HIV infected persons had evidence of past HBV infection and 10% had chronic HBV in studies done during the later 1980's.⁵ Like HCV, HBV is more easily transmitted than HIV, and consequently, evidence of past HBV infection is widespread among networks of injection drug users, many of whom were infected by HBV prior to HIV

Fig. 1. Proportional HCV outcomes in people with HIV (relative areas approximate)



acquisition. Unlike HCV, HBV is preventable by vaccination, and everyone with HIV who does not have evidence of HBV infection should be immunized. In adults, chronic HBV infection is much less likely after acute HBV than after acute HCV. Like HCV, progression to chronic hepatitis B infection is much more likely when the acutely infected person is also HIV-positive. As HBV vaccination becomes more prevalent worldwide, public health officials hope to see these proportions of HBV infection decline.

HIV-VIRAL HEPATITIS CO-INFECTION IN OREGON

In Oregon, HIV, HBV, and HCV are all mandatory notifiable diseases for licensed health care providers and laboratories. Chronic HCV infection is the most recent addition to this list in 2005 (previously, only acute HCV infection was reportable). As of December 31, 2009, out of over 8,000 cases of HIV reported among Oregon residents since 1981, 5,033

were still living. Of these, 244 (5%) also had a case of acute or chronic HBV and 350 (7%) had a reported case of acute or chronic HCV based on Public Health Division hepatitis case reports (Table 1).

These Oregon-based estimates of the proportions of people with HIV co-infected with HBV or HCV (especially) are believed to be low because nationally, 20% – 30% of people with HIV/AIDS are co-infected with HCV. And, among people with HIV who also inject drugs, up to 80% of patients nationally may have HCV. Oregon's prevalence of HCV co-infection may indeed be lower than the national estimates because Oregon has a relatively small proportion of HIV patients who were infected via injection drug use. Nevertheless, more than 7% of Oregon's HIV patients are probably HCV co-infected.

Oregon's notifiable disease-based estimates are probably low because before 2005,

Table 1. Proportion of HIV cases with reported hepatitis C virus infection, Oregon, 2006 – 2009

		HIV Cases	Proportion HCV infected (%)	Porportion HBV infected (%)
Sex				
	Male	899	7	4
	Female	134	15	1
Age group (yrs.)				
	<40	631	6	3
	40-49	253	12	4
	>49	151	7	6
Race/ethnicity				
	Hispanic	182	7	3
	Black	692	8	4
	White	61	9	9
HIV-related behavior				
	Sex with men (men)	622	3	4
	Any injection drug use	156	33	4

health care practitioners were not required to report chronic HCV. Consequently, people with HIV who acquired chronic HCV before 2005 may not be included among the reported cases of HCV. In addition, not everyone with HIV is believed to have been tested for HCV, although regular testing is recommended. For example among patients seen during 2009 at Ryan White CARE Act supported services in the Portland area, about 12% lack evidence of having been screened for HCV since their HIV diagnosis.

Although Oregon's reported HIV/HCV prevalence is lower than national estimates, distribution of cases does follow expectations in that HIV/HCV co-infection is about 10 times more prevalent among people living with HIV who report IDU than among those who do not, such as MSM (Table 1). Also, a higher prevalence of HCV co-infection ($\geq 10\%$) is observed among groups who report sexual partnerships with people who inject drugs (data not shown). No substantial racial differences were noted in prevalence of HCV co-infection.

Chronic hepatitis B infection affects an estimated 7-10% of people infected with HIV nationally.⁴ As the table indicates, reported prevalence of chronic HBV in Oregon is lower, about 4% overall. Although Oregon has few cases of HIV among people of Asian ethnicity, chronic HBV infection prevalence was 10% among Asians with HIV. Chronic HBV is endemic among many Asian populations.

REFERENCES

1. Weber, R., et al., Liver-related deaths in persons infected with the human immunodeficiency virus: the D:A:D study. *Arch Intern Med*, 2006. 166(15): p. 1632-41.
2. Kim, A.Y. and R.T. Chung, Coinfection with HIV-1 and HCV--a one-two punch. *Gastroenterology*, 2009. 137(3): p. 795-814.
3. Teuber, G., et al., Deterioration of health-related quality of life and fatigue in patients with chronic hepatitis C: association with demographic factors, inflammatory activity and degree of fibrosis. *J Hepatol*, 2008. 49(6): p. 923-9.
4. Homann, C., et al., High incidence of hepatitis B infection and evolution of chronic hepatitis B infection in patients with advanced HIV infection. *J Acquir Immune Defic Syndr*, 1991. 4(4): p. 416-20.
5. Lacombe, K., et al., HIV/hepatitis B virus co-infection: current challenges and new strategies. *Journal of Antimicrobial Chemotherapy (JAC)*, 2010. 65(1): p. 10-17.