

Risk Management — Practical Considerations

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© J Can Dent Assoc 2000; 66:542

In 1996, an outbreak of hepatitis B occurred in 2 electroencephalogram (EEG) clinics in Toronto.¹ Investigation showed that hepatitis B was transmitted to 75 (confirmed) patients and possibly to others (unconfirmed) by a technician, who was responsible for inserting intradermal electrodes into the scalp of patients. The technician tested positive for hepatitis B surface antigen (HBsAg) and hepatitis B e antigen (HBeAg). The combination of a health care worker with a high viral load and inadequate infection control practices in the clinics was responsible for what is probably the largest documented outbreak of hepatitis B in a health care setting.

The problem was detected only because an astute health inspector asked the right questions during a routine follow-up investigation of a cluster of cases of acute hepatitis B. Outbreaks may go undetected unless someone makes the right connections. This is important to remember when we talk about the transmission of infectious agents in a health care setting. The fact that we failed to see an outbreak may simply mean that we did not look.

Hepatitis B virus (HBV) is transmitted primarily by sexual contact and intravenous drug use. Transmission in a health care setting occurs through contact with blood from an infected patient or health care worker, usually via a needle-stick injury. Although most people recover completely from acute HBV infection, up to 10% develop chronic hepatitis. Infants are at higher risk of developing chronic hepatitis (up to 90% of those with an acute HBV infection develop chronic hepatitis). Fortunately prenatal screening now detects carrier mothers, and their infants receive vaccine and hepatitis B immune globulin at delivery to prevent infection. Most provinces also have a universal vaccination program for all 11-year-old school children. However, as long as some people are susceptible, HBV will continue to be transmitted to patients and health care workers unless we establish protocols to protect them.

Hepatitis C virus (HCV) is now the commonest cause of chronic hepatitis in North America. Since screening of the blood supply was instituted in 1990, most cases with known etiology are related to intravenous drug use. Unlike HBV and

HIV, sexual and vertical transmission of HCV are uncommon. Health care workers are only at slightly higher risk of acquiring this infection than the general population. Although hepatitis C does not generally cause severe acute illness and is usually asymptomatic, the associated incidence of chronic hepatitis is much higher (approximately 40% of infected individuals) than following HBV infection.

The implementation of universal precautions has been shown to be an effective way to reduce the spread of blood-borne pathogens. As health care workers who are charged to "first do no harm," we owe it to our patients to protect them and ourselves from the transmission of infectious agents in a health care setting. ♦

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The views expressed are those of the author and do not necessarily reflect the opinion or official policies of the Canadian Dental Association.

Reference

1. An outbreak of hepatitis B associated with reusable subdermal electroencephalogram electrodes. *CMAJ* 2000; 162:1127-31. Available from URL: <http://www.cma.ca/cmaj/vol-162/issue-8/1127.htm>