

PREVENTING HEPATITIS B VIRUS (HBV) TRANSMISSION IN HEMODIALYSIS

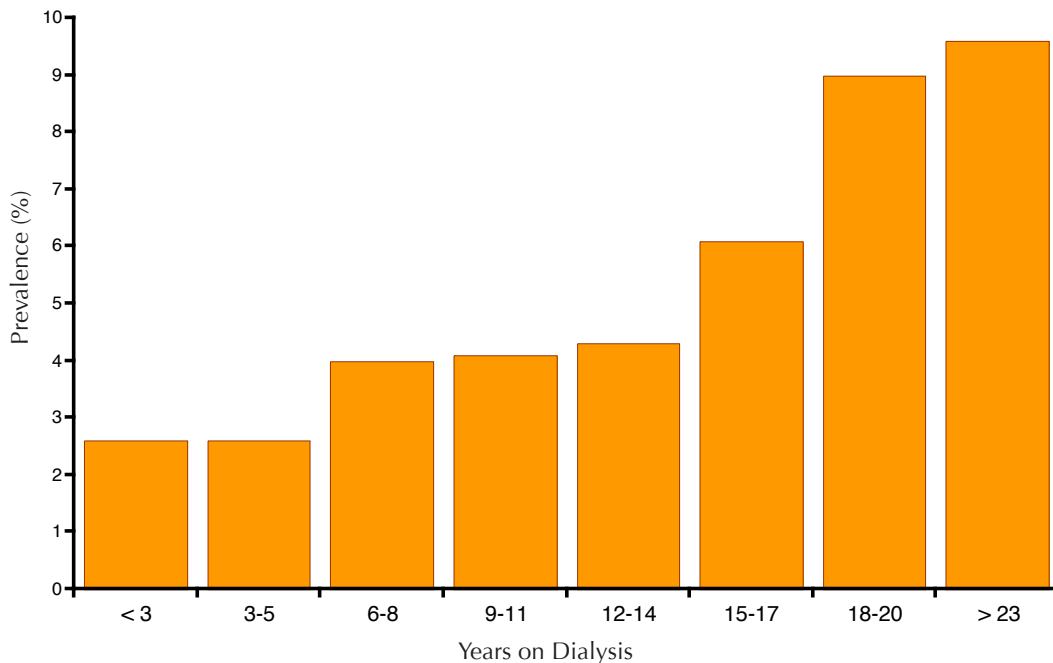
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Segregation of patients positive for hepatitis B surface antigen (HBsAg) and dialysis equipment from HBV-susceptible patients, vaccination of susceptible patients, as well as environmental control using routine cleaning and disinfection procedures, have been shown to reduce the incidence of HBV infection among hemodialysis (HD) patients in the USA and Europe by 70% to 80%.

As the parenteral exposure is a major route for viral transmission, HD patients are at particular risk of acquiring HBV infection. HBsAg, the marker for the intact virus, has been found on common environmental surfaces in HD facilities such as doorknobs, dialysis machine control panels, clamps, and scissors, where it can remain viable for at least seven days at room temperature. HBV transmission can occur through blood transfusions, percutaneous inoculation (needlestick or sharps injury), inoculation into mouth, eyes or mucus membranes (either through blood splatter or contaminated hands), contamination of environmental surfaces followed by transfer by hands, contamination of multi-dose vials, or shared patient care items. Dialysis staff can transfer the virus to patients from contaminated surfaces by their hands or if contaminated equipment and supplies are used. **It is important to note that the risk for HBV infection increases with time on dialysis, as shown below.¹**

Variation in HBV Prevalence by Patient's Time on Dialysis



Burdick et al. *Kidney Int.* 2003;63:2222-2229

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Most adults (94%-98%) with normal immune status recover completely from newly-acquired HBV infections. The virus is eliminated from the blood and neutralizing antibodies are produced that protect against future infection. In HD patients with impaired responses to vaccines, 75% to 85% of newly-acquired HBV infections result in chronic infection.

CDC recommends serologic surveillance of patients (and staff members) for HBV infection, including monthly testing of all susceptible patients for HBsAg; isolation of HBsAg-positive patients in a separate room; assignment of staff members to HBsAg-positive patients and not to HBV-susceptible patients during the same shift; assignment of dialysis equipment to HBsAg-positive patients that is not shared by HBV-susceptible patients and vaccination of susceptible patients against HBV.

Usage of external venous and arterial pressure transducer filters/protectors for each patient treatment to prevent blood contamination of the dialysis machines' pressure monitors are recommended. Filters/protectors between each patient treatment should be changed. Internal transducer filters do not need to be changed routinely between patients. Special attention to cleaning control panels on the dialysis machines and other surfaces that are frequently touched and potentially contaminated with patients' blood should be given. Discard all fluid and clean and disinfect all surfaces and containers associated with the prime waste (including buckets attached to the machines).

References

1. Burdick RA, et al. *Kidney Int.* 2003;63:2222-2229
2. Froio et al. *Am J Kidney Dis* 2003; 42: 546-550
3. Jadoul et al *Clin Nephrol* 2002
4. Freudiger et al. *NDT* 2004