

Letters to the Editor

Hepatitis B and Hemodialysis: The Impact of Universal Precautions in Preventing the Transmission of Bloodborne Viruses

To the Editor:

In the July 1998 issue of *Infection Control and Hospital Epidemiology*, Kroes et al¹ suggested that Universal (Standard) Precautions should be sufficient for preventing the transmission of hepatitis B virus (HBV) in the hemodialysis setting. However, there are important differences between Standard Precautions, routine hemodialysis-unit precautions, and additional precautions for those hemodialysis patients who are hepatitis B surface antigen (HBsAg)-positive. We further contend that the lack of awareness about the differences between recommendations for these three distinct situations are the primary reason for the continuing risk for transmission for both HBV and hepatitis C virus (HCV) among hemodialysis patients.

Standard Precautions focus on protecting the healthcare worker from exposure to bloodborne pathogens and include directions for hand washing after touching blood and other potentially infectious material, the wearing of gloves when touching blood and other potentially infectious material, and the wearing of face shields and gowns when exposure to blood or body fluids is anticipated. In addition, Standard Precautions include specific recommendations for disinfecting patient-care equipment and environmental surfaces in all healthcare settings to protect both healthcare workers and patients. Standard Precautions do not restrict the use of supplies, instruments, and medications to a single patient. Precautions for hemodialysis settings, regardless of the patient's serological status, are more stringent than Standard Precautions.

In contrast, hemodialysis-center precautions (first recommended in

1977) require glove use whenever patients or hemodialysis equipment are touched and specify that no supplies, instruments, or medications be shared between any patients, including ancillary supply equipment such as trays, blood pressure cuffs, clamps, scissors, and other nondisposable items.

Other precautions that should be used routinely for all hemodialysis patients include the assignment of patients to specific dialysis stations, cleaning or appropriately disinfecting nondisposable items between uses, and preparing and distributing medications from a centralized area. Medication carts should not be used, so that the practice of sharing medications and supplies is eliminated. Clean and contaminated areas should be separated, such that handling and storage of medications and hand washing are not done in the same area or an adjacent area to that where blood samples or used equipment are handled.

We believe that hemodialysis precautions as outlined above should be sufficient to prevent bloodborne pathogen transmission among hemodialysis patients, including HBV, when such practices are carried out routinely and rigorously. In the situation described by Kroes et al, this may have been the case. Unfortunately, such is not the case in many hemodialysis centers, as demonstrated by recent outbreaks of HBV and apparent transmission of HCV.^{2,3} Reasons for failure to follow these long-standing recommendations are not clear, but may involve changes in staffing patterns, downsizing of staff, and lack of knowledge or understanding of appropriate infection control practices in that setting.

In most instances, "minor" breaks in infection control practices will not result in bloodborne pathogen transmission, because the pathogens might not be present, the dose might be insufficient to result in infection, or the pathogens do not survive on environmental surfaces. HBV, however, circulates at extraordinarily high titers and remains stable on environmental surfaces for long periods of time; thus, even "minor"

accidental breaks in infection control practices can result in HBV transmission among patients.^{4,5} Thus, the unforgiving nature of HBV demands that additional precautions be used, which include routine serological surveillance of susceptible patients and staff for hepatitis B (and review of results) and separating HBsAg-positive patients from susceptible patients by using a separate room, machine, other equipment, and staff.

REFERENCES

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The authors reply.

We appreciate the response by Lyerla et al to our report, as it was our primary intention to initiate discussion on the optimal approach in the prevention of bloodborne infections in hemodialysis procedures. We wish to emphasize again that the single incident we analyzed in our report is not intended to provide evidence of the safety of the described procedure. It may serve as a cause to reconsider the exceptional status of hepatitis B infection, however.