

Hepatitis Surges in Residents With Diabetes

More outbreaks linked to contamination are occurring in assisted living facilities.

BY MIRIAM E. TUCKER

ATLANTA — At least 17 hepatitis B virus infection outbreaks have occurred since 1996 in people living with diabetes in long-term care settings, including assisted living facilities, according to a Centers for Disease Control and Prevention scientist.

CDC has linked all the outbreaks, involving up to 26 people in one facility, to contamination of blood-glucose testing equipment, inadequate hand hygiene among staff who perform glucose testing, or both, said Nicola D. Thompson, PhD, at a meeting of CDC's Advisory Committee on Immunization Practices (ACIP).

Dr. Thompson, who works in the agency's division of viral hepatitis, presented the information as background for a possible future recommendation of vaccinations against hepatitis B virus (HBV) for all people with diabetes in long-term care.

The continued occurrence of these outbreaks despite existing guidelines for their prevention is a major concern, said Dr. Thompson in an interview (see box).

The first HBV outbreak associated with diabetes care in any health care setting was reported in a hospital in 1990. Another hospital outbreak was reported in 1996, along with one in a nursing home. Between 1999 and 2003, seven HBV outbreaks were reported in nursing home residents with diabetes. Since 2004, nine such outbreaks were reported

in assisted living facilities but none in hospitals or nursing homes.

The shift in settings for these outbreaks—from hospitals to nursing homes to assisted living facilities—reflects the increased emphasis on infection control practices in hospitals and, more recently, nursing homes, said Dr. Thompson. In contrast to hospitals and nursing homes, where regulation and oversight occur at the federal level, assisted living facilities are not federally licensed, and oversight goes no higher than the state level, she commented.

In every outbreak, the HBV transmission was traced to blood contamination of a finger-stick device or a glucose meter used for multiple persons, or failure of staff to change or use gloves or perform hand hygiene between procedures. Hepatitis B remains stable in the environment for at least 7 days and may be present even in the absence of visible blood, Dr. Thompson noted.

CDC personnel conducted facility-wide seroprevalence surveys in their investigations of 13 of the outbreaks, covering 1,308 residents. Acute HBV infection was identified in 30.5% of the 338 of those residents with diabetes, but in just 0.9% of the 970 nondiabetics. Rates of past and chronic HBV infection were also higher in the people with diabetes.

In all 19 outbreaks reported to date, including the 2 at hospitals, a total of 153 people were identified with HBV infection. Their median age was 75 years (range 42-92 years). In all, 92% of the

acute HBV infections occurred in people with diabetes who were monitoring their blood glucose or having it monitored. The rest were cases reported in roommates of these residents, nonresident family members, and staff.

One-third of the people with acute HBV infections (51) had jaundice, and of those, about a third (19) were hospitalized. Eight patients died from their acute HBV infection. Their median age was 85 years (range 64-92 years).

Among 29 individuals who were retested more than 6 months after an initial diagnosis, 50% had developed chronic HBV infection. This proportion is similar to those seen in other groups considered to be at high risk for chronic HBV. While CDC awaits advice from ACIP regarding HBV vaccinations, the agency is working to improve health care facilities' adherence to current infection-control recommendations and is promoting the development of safer blood-glucose devices, Dr. Thompson told the committee.

"This potentially has some serious implications for assisted living facilities, which is where the majority of these outbreaks occurred," said Timothy Malloy, MD, CMD, a multi-facility medical director in Omaha, Neb. "I think states should be looking at this and considering regulations to address this in this care setting."

Dr. Malloy suggested that assisted living facilities implement infection-control procedures similar to those that

work in skilled nursing facilities. That includes education for staff covering issues such as hand washing, use of gloves, and proper use of lancets, he said. "With the low ratio of professional staff to caregivers in assisted living, up-to-date and ongoing education and training are essential."

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Recent Guidelines

- ▶ 1997 American Association of Diabetes Educators statement (www.diabeteseducator.org/export/sites/aade/_resources/pdf/EducProvidersBloodborneInfections.pdf).
- ▶ 2005 CDC recommendation for safe diabetes care in long-term settings (MMWR 2005;54:220-3).
- ▶ 2007 isolation guidelines from the Healthcare Infection Control Practices Advisory Committee (www.cdc.gov/ncidod/dhqp/gl_isolation.html).
- ▶ 2009 FDA health alert for appropriate use of insulin pens in health care settings (www.fda.gov/Safety/MedWatch/SafetyInformation/SafetyAlertsforHumanMedicalProducts/ucm127783.htm).

Source: Dr. Thompson

Probe of Norovirus Outbreaks Yields LTC Clues

BY KEITH HAGLUND

An investigation of a string of norovirus outbreaks in one long-term care facility has yielded insights into how the gastroenteritis virus might spread in an institution, as well as how infection-control lapses might compound such viral outbreaks.

In late 2007, the Oregon Public Health Division learned of the third acute gastroenteritis outbreak within a year at a 690-resident facility in the state. Investigators from the Oregon division as well as the Centers for Disease Control and Prevention descended on the unnamed facility while the outbreak was still underway and logged extensive data on both residents and employees.

By genotyping current and stored norovirus samples from all three outbreaks, the researchers learned, "Each of the three outbreaks ... was caused by different norovirus variants," suggesting repeated introduc-

tion of virus, the team wrote in the Morbidity and Mortality Weekly Report (2009;58:694-8).

Because of the residents' long tenure at the facility and their lack of mobility, the researchers concluded that "employees or visitors were more likely to have contributed to the introduction of new infection and dissemination across wards."

Two other indicators that staff members introduced infection were that only 16 of the 22 wards in the facility were hit by the outbreak and those wards were administered by different staff than those in the 6 unaffected wards.

The same ward-to-ward differences led the researchers to conclude that the virus was spread between people and was not from a food source. "Although all wards were served by a common food supply, pro-

longed transmission occurred only within certain wards," wrote the team.

The 242 employees in wards with 10 or more cases during the third outbreak were asked to complete anonymous questionnaires about such actions as us-

Staffing shortages and policies that discouraged sick leave meant that many of the 35% of employees who were sick with norovirus on the hard-hit wards failed to stay home.

ing gloves, washing their hands, wearing masks, and cleaning up after sick residents. The team also analyzed stool samples from 25 ill residents and employees and environmental swab samples from the wards hardest hit by norovirus.

Employees were at much higher risks of infection if they hadn't worked at the facility

long and if they had cleaned up vomitus at work. Each of these parameters carried a 1.6 adjusted relative risk. The researchers said they couldn't explain the difference made by length of employment but noted that other research has implicated aerosolized vomitus as a norovirus vector.

"Gloves were worn by 97% of surveyed employees who cleaned vomitus, but they rarely wore gowns or aprons and masks while cleaning vomitus," the researchers found.

The Oregon/CDC team recommended the following ways to reduce the spread of infection when an ill person has vomited or defecated:

- ▶ Limit aerosolization during clean-up by minimal agitation of vomitus or feces while using disposable towels and impervious waste bags.

▶ Thoroughly clean and disinfect surfaces with freshly made 5,000-ppm hypochlorite solution or other product registered by the Environmental Protection Agency.

▶ Wear gloves, masks, and gowns when cleaning up these materials.

The team reported several "major barriers or lapses in infection control" at the facility. First, having overall staffing shortages and policies that discouraged sick leave meant that many of the 35% of employees who were sick with norovirus on the hard-hit wards failed to stay home.

Second, a particular shortage of housekeeping staff and the absence of any EPA-registered disinfectants meant residents' rooms weren't cleaned properly. Third, the team found an insufficient number of hand-washing stations, with none in dining areas or residents' rooms.

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