Factors associated with HBV outbreaks that occurred in separate skilled nursing facilities (SNFs)

Abstract:

Objective – Acute hepatitis B virus (HBV) infections have been reported in long-term care facilities (LTCFs), primarily associated with infection control breaks during assisted blood glucose monitoring. We investigated HBV outbreaks that occurred in separate skilled nursing facilities (SNFs) to determine factors associated with transmission.

Design – Outbreak investigation with case-control studies.

Setting – Two SNFs (facilities A and B) in Durham, North Carolina, during 2009–2010.

Patients – Residents with acute HBV infection and controls randomly selected from HBV-susceptible residents during the outbreak period.

Methods -After initial cases were identified, screening was offered to all residents, with repeat testing 3 months later for HBV-susceptible residents. Molecular testing was performed to assess viral relatedness. Infection control practices were observed. Case-control studies were conducted to evaluate associations between exposures and acute HBV infection in each
Results - Six acute HBV cases were identified in each SNF. Viral phylogenetic analysis revealed a high degree of HBV relatedness within, but not between, facilities. No evaluated exposures were significantly associated with acute HBV infection in facility A; those associated with infection in facility B (all odds ratios >20) included injections, hospital or emergency room visits, and daily blood glucose monitoring. Observations revealed absence of trained infection control staff at facility A and suboptimal hand hygiene practices during blood glucose monitoring and insulin injections at facility B.

Conclusions - These outbreaks underscore the vulnerability of LTCF residents to acute HBV infection, the importance of surveillance and prompt investigation of incident cases, and the need for improved infection control education to prevent transmission.