Medical News

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An Outbreak of Hepatitis B and C Virus Infections in a Pediatric Oncology Ward

Dumpis and colleagues from the University of Latvia, Riga, Latvia, performed an outbreak investigation of hepatitis B and C virus infections. One hundred six patients were infected in a hematology–oncology ward for children during 1996 to 2000. Serum samples from 45 such patients and 3 from infected medical personnel were used for nucleic acid amplification. Hepatitis B virus core as well as hepatitis C virus core and hypervariable region 1 (HVR1) nucleotide sequences underwent phylogenetic tree analysis to characterize the epidemiologic pattern of viral transmission on the ward.

Samples from 32 patients were positive for hepatitis B virus DNA or hepatitis C virus RNA by polymerase chain reaction. Ten patients were positive for both markers. Seventeen of 23 hepatitis C virus core gene sequences were found to be evolutionarily related and clustered separately from other local sequences in the phylogenetic tree, indicating nosocomial transmission. This was confirmed by analysis of HVR1 gene sequences. One nurse and one physician from the ward were hepatitis C virus RNA positive, but their hepatitis C virus sequences were not related evolutionarily to those of the patient cluster. Fifteen of 19 hepatitis B virus core gene sequences were also clustered together and were positioned separately in the relevant tree. An epidemiologic investigation excluded a common source for infection and indicated that spread of infection was most likely due to inappropriate infection control measures on the ward. No obvious risk factors for transmission were identified during the retrospective survey in patients with related sequences, except the use of multidose vials for saline and poor staff compliance with routine hand hygiene procedures.

The preventive measures that were introduced reduced the incidence of infection significantly. No new cases of hepatitis B virus infection and only 3 anti–hepatitis C virus seroconversions occurred during 19 months. The introduction and maintenance of strict prevention measures during 2 years, combined with hepatitis B virus vaccination, significantly reduced the incidence of new hepatitis C and hepatitis B virus infections.

FROM: Dumpis U, Kovalova Z, Jansons J, et al. An outbreak of HBV and HCV infection in a paediatric oncology ward: epidemiological investigations and prevention of further spread. *J Med Virol* 2003;69:331-338.

Prevalence of Vancomycin-Resistant Enterococci in Response to Antimicrobial Interventions

Lautenbach and colleagues from the University of Pennsylvania School of Medicine, Philadelphia, conducted a study to assess the impact of restricting the use of vancomycin and third-generation cephalosporins on the prevalence of vancomycin-resistant enterococci (VRE). All clinical enterococcal isolates identified at a large academic medical center during a 10-year period were analyzed. Changes in the prevalence of VRE after sequential restrictions on the use of vancomycin and third-generation cephalosporins were evaluated. The correlation between antibiotic use and VRE prevalence was also investigated. The use of vancomycin initially decreased by 23.9% but returned to preintervention levels by the end of the study. The use of third-generation cephalosporins decreased by 85.8%. However, the prevalence of VRE increased steadily from 17.4% to 29.6% during the 10-year period ($P < .001$). The use of clindamycin was significantly correlated with the prevalence of VRE. Restricting the use of vancomycin and third-generation cephalosporins had little impact on the prevalence of VRE. The association between the use of clindamycin and the prevalence of VRE suggests that restriction of this and perhaps other antianaerobic agents might be an important component of future antimicrobial interventions.

FROM: Lautenbach E, LaRosa LA, Marr AM, Nachamkin I, Bilker WB, Fishman NO. Changes in the prevalence of vancomycin-resistant enterococci in response to antimicrobial formulary interventions: impact of progressive restrictions on use of vancomycin and third-generation cephalosporins. *Clin Infect Dis* 2003;36:440-446.

Clinical and Economic Outcomes Attributable to Methicillin-Resistant *Staphylococcus aureus* Surgical-Site Infections

Engemann and colleagues from Duke University Medical Center, Durham, North Carolina, analyzed data from 479 patients to assess the impact of methicillin resistance on the outcomes of patients with *Staphylococcus aureus* surgical-site infections (SSIs). Patients infected with methicillin-resistant *S. aureus* (MRSA) had a greater 90-day mortality rate than did patients infected with methicillin-susceptible *S. aureus* (MSSA; adjusted odds ratio, 3.4; 95% confidence interval, 1.5 to 7.2). Patients infected with MRSA had a greater duration of hospitalization after infection (median additional days, 5; $P < .001$), although this was not significant on multivariate analysis ($P = .11$). Median hospital charges were $29,455 for control subjects, $52,791 for patients with MSSA SSI, and $92,363 for patients with MRSA SSI ($P < .001$ for all group comparisons). Patients with MRSA SSIs had a 1.19-fold increase in hospital charges ($P = .03$) and had mean attributable excess charges