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Risk Factors and Outcome for Vancomycin-Resistant and -Susceptible Enterococcal Bacteremia

Gina Pugliese, RN, MS
Martin S. Favero, PhD

Bhavnani and coinvestigators, from the Clinical Pharmacokinetics Laboratory, Millard Fillmore Hospital/Kaleida Health, Buffalo, New York, conducted a study of National Nosocomial Resistance Surveillance Group participants from 22 hospitals across the United States. They reviewed medical records for hospitalized patients with vancomycin-resistant enterococcal (VRE) or vancomycin-susceptible enterococcal (VSE) bacteremia to identify risk factors associated with the acquisition of VRE bacteremia, describe genetic traits of VRE strains, and identify factors predic-

tive of clinical outcome. VRE cases were matched to VSE controls within each institution. Multiple logistic regression (LR) and classification and regression tree (CART) analysis were used to probe for factors associated with VRE bacteremia and clinical outcome. A total of 150 matched-pairs of VRE cases and VSE controls were collected from 1995 to 1997. Using LR, the following were found to be highly associated with VRE bacteremia: history of AIDS, positive HIV status, or drug abuse (odds ratio [OR], 9.58); prior exposure with parenteral vancomycin (OR, 8.37); and liver transplant history (OR, 6.75). CART analysis revealed that isolation of *Enterococcus faecium*, prior vancomycin exposure, and serum creatinine

values ≥ 1.1 mg/dL were predictors of VRE bacteremia. Greater proportions of clinical failure (60% vs 40%; $P < .001$) and all-cause mortality (52% vs 27%; $P < .001$) were seen in patients with VRE versus VSE bacteremia. Results from both LR and CART indicated that patients with persisting enterococcal bacteremia, intubation at baseline, higher APACHE II scores, and VRE bacteremia were at greater risk for poor outcome.

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