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Parenteral Antibiotic Administration on Persistence of VRE

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Donskey and colleagues from the Veterans Affairs' Medical Center and Case Western Reserve University School of Medicine, Cleveland, Ohio, used a mouse model of vancomycin-resistant *Enterococcus faecium* (VRE) intestinal colonization to study the effect of different subcutaneous antibiotics on persistence and density of VRE colonization. Gastric inoculation of a clinical *van*B VRE isolate, in conjunction with oral vancomycin in drinking water (250 μg/mL), resulted in high-level VRE colonization (mean, 9.5 $\log_{10}$ colony-forming units [CFU]/g) in all 169 experimental mice. After discontinuation of oral vancomycin, the level of VRE in the stool specimens of mice receiving subcutaneous saline steadily decreased (mean, 3.59 $\log_{10}$ CFU/g at day 19). Subcutaneous vancomycin, clindamycin, piperacillin-tazobactam, ticarcillin-clavulanic acid, metronidazole, cefotetan, ampicillin, and ampicillin-sulbactam all promoted persistent high levels of stool VRE. Subcutaneous ceftriaxone, cefepime, ciprofloxacin, and aztreonam promoted increased VRE density to a lesser degree or not at all.

Thus, in a mouse model, vancomycin and antibiotics with potent anti-anaerobic activity promoted persistent high-density intestinal VRE colonization, whereas antibiotics lacking potent anti-anaerobic activity did not.

FROM: Donskey CJ, Hanrahan JA, Hutton RA, Rice LB. Effect of parenteral antibiotic administration on persistence of vancomycin-resistant *Enterococcus faecium* in the mouse gastrointestinal tract. *J Infect Dis* 1999;180:384-390.