

of antibiotics, whether there was an explicit note in the medical chart in which the physician diagnosed a true bacteremia, and the Centers for Disease Control surveillance criteria for primary bloodstream infection. Agreement between same-strain bacteremia and each definition was examined, based on the assumption that most true infections should be the result of a single strain.

The study sample consisted of 42 patients and 106 isolates. Nineteen of the 42 bacteremias (45%) were the same strain. Classification of bacteremias as same-strain correlated poorly with all three clinical assessments (range of percentage agreement, 50%-57%; range of kappa statistic, 0.01-0.15). There were both false-positive and false-negative errors. Patients with three or more positive blood cultures were more likely to have same-strain bacteremia than those with only two positive cultures (11/15 [73%] vs 8/27 [30%],  $P=0.006$ ). Pulsed-field gel electrophoresis was more discriminating than AP PCR (percentage agreement, 83%; kappa, 0.67).

The authors concluded that molecular typing correlated poorly with clinical criteria for true bacteremia, suggesting either that true bacteremias are frequently the result of multiple strains or that the commonly used clinical criteria are not accurate for distinguishing contamination from true bacteremia. Vancomycin treatment of clinically defined coagulase-negative staphylococcal bacteremia may frequently be unnecessary.

FROM: Seo SK, Venkataraman L, DeGirolami PC, Samore MH. Molecular typing of coagulase-negative staphylococci from blood cultures does not correlate with clinical criteria for true bacteremia. *Am J Med* 2000;109:697-704.

## Nasal Carriage as a Source of *Staphylococcus aureus* Bacteremia

von Eiff and colleagues from the Institute of Medical Microbiology, Westfälische Wilhelms-Universität Münster, Münster, Germany, examined *Staphylococcus aureus* isolates from blood and from nasal specimens to determine whether the organisms in the bloodstream originated from the patient's own flora. In a multicenter study, swabs for culture were obtained from the anterior nares of 219 patients with *S aureus* bacteremia. A total of 723 isolates were collected and genotyped. In a second study, 1,640 *S aureus* isolates from nasal swabs from 1,278 patients were collected over a period of 5 years and then compared with isolates from the blood of patients who subsequently had *S aureus* bacteremia.

In the multicenter study of *S aureus* bacteremia, the blood isolates were identical to those from the anterior nares in 180 of 219 patients (82.2%). In the second study, 14 of 1,278 patients who had nasal colonization with *S aureus* subsequently had *S aureus* bacteremia. In 12 (86%) of these 14 patients, the isolates obtained from the nares were clonally identical to the isolates obtained from blood 1 day to 14 months later.

The authors concluded that a substantial proportion of cases of *S aureus* bacteremia appears to be of endogenous origin since they originate from colonies in the nasal

mucosa. These results provide support for strategies to prevent systemic *S aureus* infections by eliminating nasal carriage of *S aureus*.

FROM: von Eiff C, Becker K, Machka K, Stammer H, Peters G. Nasal carriage as a source of *Staphylococcus aureus* bacteremia. *N Engl J Med* 2001;344:11-16.

## Granulocyte Colony-Stimulating Factor Reduces Infection Risk in Infants

Miura and coinvestigators from Porto Alegre, Brazil, performed a randomized, double-masked, parallel-groups, placebo-controlled trial of recombinant granulocyte colony-stimulating factor (rG-CSF) administration to 44 preterm neonates who had blood cultures obtained and antibiotics begun because of the clinical diagnosis of early-onset sepsis. The treatment group ( $n=22$ ) received 10  $\mu\text{g}/\text{kg}/\text{d}$  of intravenous rG-CSF once daily for 3 days, and the placebo group ( $n=22$ ) received an IV preparation in the same volume.

The treatment and placebo groups were of similar gestational age ( $29\pm 3$  vs  $31\pm 3$  weeks) and birth weight ( $1,376\pm 491$  vs  $1,404\pm 508$  g), and had similar Apgar scores and 24-hour Score for Neonatal Acute Physiology scores. The mortality rate was not different between treatment and placebo groups. However, the occurrence of a subsequent nosocomial infection was lower in the rG-CSF recipients. The rG-CSF treatment did not alter the serum concentrations of the cytokines measured (except for G-CSF). Serum G-CSF levels and blood neutrophil counts were higher in the treatment than in the placebo group 24 hours and 48 hours after dosing.

The authors concluded that the administration of three daily doses of rG-CSF to premature neonates with the clinical diagnosis of early-onset sepsis did not improve mortality but was associated with acquiring fewer nosocomial infections over the subsequent 2 weeks.

FROM: Miura E, Procianny RS, Bittar C, Miura CS, Miura MS, Mello C, et al. A randomized, double-masked, placebo-controlled trial of recombinant granulocyte colony-stimulating factor administration to preterm infants with the clinical diagnosis of early-onset sepsis. *Pediatrics* 2001;107:30-35.

## Predicting Nosocomial Infections and Deaths in ICU Patients

Nosocomial (hospital-acquired) infections are very frequent in ICUs. The risk of death after severe infection is high, but the precise rate of death in ICU attributable to nosocomial infection is not known. Escolano and coinvestigators from Paris have reported on a project to build a statistical model to predict the occurrence of nosocomial infections in ICU and the outcome of the patients. They collected data on 676 consecutive patients admitted to an ICU for more than 24 hours between 1993 and 1996. For each patient, data were collected on history, clinical examination at entry, subsequent infections, and outcome. A multistate