Abstracts of current literature on epidemiology, diagnosis, and treatment

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VANCOMYCIN VERSUS CEFAZOLIN IN HEMODIALYSIS-DEPENDENT PATIENTS WITH MSSA BACTEREMIA

Investigators compared the clinical outcomes obtained prospectively from a cohort of hemodialysis-dependent patients with methicillin-susceptible *Staphylococcus aureus* (MSSA) bacteremia who were treated with either vancomycin or cefazolin. The primary endpoint was treatment failure, defined as death or recurrent infection during the 12-week follow-up period. From September 1994 to August 2001, 123 hemodialysis-dependent patients were identified and included in the study. Of these patients, 77 (63%) received vancomycin and 46 (37%) received cefazolin for treatment of MSSA infection. The vancomycin group had a lower rate of metastatic complications at presentation (11.7%) than the cefazolin group (36.7%; $P = 0.001$). Otherwise, patients had similar Acute Physiology and Chronic Health Evaluation II scores, comorbidities, source of infection, type of hemodialysis access, and access removal rates. Treatment failure occurred more commonly in the vancomycin group (31.2%) than in the cefazolin group (13%; $P = 0.02$). Multivariate analysis identified vancomycin use (odds ratio, 3.53 [95% confidence interval {CI}, 1.15–13.45]) and retention of hemodialysis access (odds ratio, 4.99 [95% CI, 1.89–13.76]) as independent risk factors for treatment failure. Vancomycin should be limited to empiric therapy in hemodialysis-dependent patients with MSSA bacteremia.

Stryjewski ME, Szczech LA, Benjamin DK Jr, et al. Use of vancomycin or first-generation cephalosporins for the treatment of hemodialysis-dependent patients with methicillin-susceptible Staphylococcus aureus *bacteremia. Clin Infect Dis 2007;44:190–6.*

DECREASED CATHETER-RELATED BLOODSTREAM INFECTIONS IN THE ICU

The authors conducted a collaborative cohort study in the intensive care units (ICUs) of Michigan hospitals where an evidence-based intervention (handwashing, using full-barrier protection during insertion of central venous catheters, cleaning the skin with chlorhexidine, avoiding the femoral site when possible, and removing unnecessary catheters) was initiated to reduce the incidence of catheter-related bloodstream infections (BSI). The effect of the intervention was evaluated by measuring rates of infection per 1000 catheter-days every 3 months for a total of 18 months follow-up. Data for 1981 ICU months and 375,757 catheter-days were obtained from 103 ICUs in 67 hospitals (medical, surgical, cardiac, and pediatric ICUs). At baseline, the overall median rate of catheter-related BSI was 2.7 (mean, 7.7) infections per 1000 catheter-days, which decreased to 0 (mean, 2.3) infections per 1000 catheter-days 0 to 3 months after the intervention was implemented ($P \leq 0.002$). This decrease was sustained at 0 (mean, 1.4) infections per 1000 catheter-days during the 18 months of follow-up. A multilevel Poisson regression model demonstrated a significant decline in rates of catheter-related BSI during all study periods as compared to baseline rates, with incidence rate ratios continuously decreasing from 0.62 (95% CI, 0.47–0.81) at 0 to 3 months after implementation of the intervention to 0.34 (95% CI, 0.23–0.50) at 16 to 18 months. The intervention resulted in a large and sustained (up to 66%) reduction in catheter-related BSI.

Pronovost P, Needham D, Berenholtz S, et al. An intervention to decrease catheter-related bloodstream infections in the ICU. N Engl J Med 2006;355:2725–32.

EFFICACY OF MRSA ERADICATION THERAPY

Researchers assessed the efficacy of eradicating methicillin-resistant *S. aureus* (MRSA) colonization and identified variables that would predict the outcome of MRSA decolonization therapy. All adult patients hospitalized in 8 hospitals in Toronto or Hamilton, Ontario, Canada, with confirmed MRSA colonization were eligible, and enrolled patients were randomized to receive treatment (2% chlorhexidine gluconate washes and 2% mupirocin ointment intranasally, with oral rifampin and doxycycline for 7 days) or no treatment. Follow-up samples for MRSA culture were obtained monthly for up to 8 months. The primary outcome measure was detection of MRSA at 3-month follow-up. Of 112 patients who were followed for at least 3 months, 74% (64/87) of treated patients had negative culture results for MRSA as compared with 32% (8/25) of untreated patients ($P = 0.0001$). At 8 months, this difference remained significant, as 54% of treated patients had negative culture results ($\chi^2 = 64.4$; $P < 0.0001$, by log-rank test). Multivariate analysis revealed that presence of mupirocin-resistant isolate at baseline was associated with treatment failure (relative risk, 9.4 [95% CI, 2.8–31.9]; $P = 0.0003$), whereas decolonization therapy was protective (relative risk, 0.1 [95% CI, 0.04–0.4]; $P = 0.0002$). Mupirocin resistance emerged in only 5% of follow-up isolates. No patients were infected with MRSA during the study. The study treatment was safe and effective in eradicating MRSA colonization in hospitalized patients for at least 3 months.

Simor AE, Phillips E, McGeer A, et al. Randomized controlled trial of chlorhexidine gluconate for washing, intranasal mupirocin, and rifampin and doxycycline versus no treatment for the eradication of methicillin-resistant Staphylococcus aureus *colonization. Clin Infect Dis 2007;44:178–85.*

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