

Abstracts of current literature on epidemiology, diagnosis, and treatment

Series Editor: Jihad Slim, MD

INFLUENCE OF VANCOMYCIN MINIMUM INHIBITORY CONCENTRATION ON THE TREATMENT OF MRSA BACTEREMIA

The authors determined whether vancomycin minimum inhibitory concentration (MIC) influenced the mortality associated with methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia. Consecutive episodes of MRSA bacteremia diagnosed at a single center (Barcelona, Spain; n = 414) were prospectively followed from 1991 through 2005. MIC results of the first isolate collected and clinical and demographic data were obtained. Multivariate analysis revealed that a lower risk of shock was independently associated with MRSA strains that had a vancomycin MIC of 2 µg/mL (odds ratio [OR], 0.33 [95% confidence interval (CI), 0.15–0.75]). In addition to increasing age, disease prognosis, corticosteroid usage, bacteremia source, and shock, inappropriate empirical therapy (OR, 3.62 [95% CI, 1.20–10.9]) and empirical vancomycin plus vancomycin MIC of 2 µg/mL (OR, 6.39 [95% CI, 1.68–24.3]) were independent predictors of mortality. These findings suggest that vancomycin is not the optimal therapeutic option for treating MRSA bacteremia with a high vancomycin MIC (> 1 µg/mL) when using a vancomycin trough serum concentration greater than 10 µg/mL as a target.

Soriano A, Marco F, Martínez JA, et al. Influence of vancomycin minimum inhibitory concentration on the treatment of methicillin-resistant *Staphylococcus aureus* bacteremia. *Clin Infect Dis* 2008;46:193–200.

HYDROCORTISONE THERAPY FOR SEPTIC SHOCK

Researchers conducted a multicenter, randomized, double-blind, placebo-controlled trial to evaluate the efficacy and safety of low-dose hydrocortisone therapy in patients with septic shock. Patients received either 50 mg of intravenous hydrocortisone (n = 251) or placebo (n = 248) every 6 hours for 5 days, which was then tapered over 6 days. The primary outcome was 28-day mortality among patients who did not respond to a corticotropin test. Overall, 233 patients (46.7%) did not respond to corticotropin (study group, 125 patients; placebo group, 108 patients), 254 (50.9%) responded to corticotropin (study group, 118 patients; placebo group, 136 patients), and the results for the remaining patients were unknown (2.4%). No significant difference in 28-day mortality was found between the 2 study groups among patients who did not respond to corticotropin (study group, 39.2%; placebo group, 36.1%; $P = 0.69$) or among those who responded to corticotropin (study group, 28.8%; placebo group, 28.7%; $P = 1.00$). The primary endpoint was achieved for 86 patients (34.3%) in the study group and 78 (31.5%) in the placebo group ($P = 0.51$). In the study group, shock was reversed more quickly than in the placebo group, but there were more episodes of superinfection. Hydrocortisone

neither improved survival nor reversed shock in patients with septic shock regardless of corticotropin response, although hydrocortisone hastened reversal of shock in patients in whom shock was reversed.

Sprung CL, Annane D, Keh D, et al; CORTICUS Study Group. Hydrocortisone therapy for patients with septic shock. *N Engl J Med* 2008; 358:111–24.

COAGULASE-NEGATIVE STAPHYLOCOCCI: AN EMERGING CAUSE OF NATIVE VALVE ENDOCARDITIS

Investigators used data from endocarditis patients enrolled in an international multicenter study to determine the clinical characteristics and predictors of outcome in those with definite native valve endocarditis (NVE) due to infection with coagulase-negative staphylococci (CoNS). Data for cases of CoNS-associated NVE were compared with cases of NVE caused by *S. aureus* and cases caused by viridans group streptococci (VGS). Of 1635 patients with definite NVE and no history of injection drug use, 128 (7.8%) had CoNS-associated NVE. Health care-associated infection occurred in 63 patients (49%) with CoNS-associated NVE. Comorbidities, long-term intravascular catheter use, and history of recent invasive procedures were similar among patients with CoNS-associated NVE and among patients with *S. aureus*-associated NVE but were significantly less frequent in patients with VGS-associated NVE ($P < 0.01$). Surgical treatment for endocarditis occurred more frequently in patients with CoNS-associated NVE (76 [60%]) than in patients with *S. aureus*-associated NVE (150 [33%]; $P < 0.01$) or VGS-associated NVE (149 [44%]; $P < 0.01$). Mortality rates among patients with CoNS-associated NVE and patients with *S. aureus*-associated NVE were similar (32 patients [25%] and 124 patients [27%], respectively; $P = 0.44$), whereas mortality rate among patients with CoNS-associated NVE was higher than that among patients with VGS-associated NVE (24 [7.0%]; $P < 0.01$). Persistent bacteremia (OR, 2.65 [95% CI, 1.08–6.51]), congestive heart failure (OR, 3.35 [95% CI, 1.57–7.12]), and chronic illness (OR, 2.86 [95% CI, 1.34–6.06]) were independently associated with death in patients with CoNS-associated NVE. CoNS have emerged as an important cause of NVE in both community and health care settings. Despite high rates of surgical therapy, NVE caused by CoNS is associated with poor outcomes.

Chu VH, Woods CW, Miro JM, et al; International Collaboration on Endocarditis-Prospective Cohort Study Group. Emergence of coagulase-negative staphylococci as a cause of native valve endocarditis. *Clin Infect Dis* 2008;46:232–42.

Dr. Slim is an assistant professor of medicine, Seton Hall University, South Orange, NJ. Abstracts written by Rita E. Gould, Hospital Physician.

Copyright 2008 by Turner White Communications Inc., Wayne, PA. All rights reserved.