Procalcitonin-Guided Protocol Can Cut Duration of Antibiotics for Pneumonia

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WASHINGTON — A procalcitonin-guided protocol can cut the duration of antibiotic use in patients with community-acquired pneumonia by roughly 50%, according to data presented at the annual Intersociety Conference on Antimicrobial Agents and Chemotherapy.

Procalcitonin seems to be a more reliable parameter for the individual tailoring and discontinuation of antibiotics as compared with commonly and routinely used clinical and laboratory parameters,” said Dr. Mirjam Christ-Crain, an endocrinologist at the University Hospital Basel (Switzerland). She and her colleagues proposed using procalcitonin as a biomarker to guide antibiotic treatment because the propeptide of calcitonin is increased with increasing severity of bacterial infection.

For this study, patients with community-acquired pneumonia (CAP) were randomized to standard therapy of 4 weeks or standard duration (151 patients) or therapy whose duration was guided by procalcitonin (151 patients). Patients in both groups averaged age 70 years. Only 20% had antibiotic pretreatment. Most patients in both groups had comorbidities. More than two thirds of patients had severe or very severe pneumonia.

Among those in the procalcitonin group, patients with levels greater than 0.25 mcg/l were started on antibiotic therapy, whereas patients with levels of 0.25 mcg/l or less were not given antibiotics. Procalcitonin measurements were performed on all patients on days 0, 2, 4, and 8, and the results were available only for those in the procalcitonin group. The decision to continue or discontinue antibiotic therapy in the procalcitonin group was based on the cutoff levels described above. Follow-up, including using x-ray, was performed at 4-6 weeks. In patients with clinical certainty, there was follow-up remeasurement of procalcitonin in 6 hours.

Patients in the standard therapy group received antibiotics initially, and almost all of those patients were on antibiotics for more than 6 days. Most patients in the procalcitonin group initially received antibiotics. In this group, only about 30% had antibiotics for more than 4 days and about 30% for more than 6 days,” Dr. Christ-Crain said.

Patients in the procalcitonin group received antibiotics for an average of 6 days, compared with 13 days for the standard therapy group. “This is a highly significant reduction of antibiotic use and antibiotic duration,” said Dr. Christ-Crain, at the meeting sponsored by the American Society for Microbiology.

Clinical outcomes—as assessed by a visual analog scale and clinical parameters such as temperature, oxygen saturation, and pulse rate—were similar in both groups. Laboratory outcomes—C-reactive protein and procalcitonin levels in the normal reference ranges—assessed at 4-6 weeks were also similar.

Most experts recommend a 10-14-day course of antibiotic therapy to treat CAP, but the optimal duration is unknown. “In our opinion, the current duration of antibiotics varies from patient to patient,” Dr. Christ-Crain said.

New tests for the determination of procalcitonin levels have improved sensitivity, enabling physicians to distinguish clinically relevant bacterial infections from other infections.

Low BMI Predicted Increased Mortality Risk in Septic Shock

SAN FRANCISCO — For at least one medical condition, it’s low and not high BMI that predicts mortality, a study has shown.

Patients admitted to the ICU for septic shock had a significantly greater risk of death if they had a lower-than-normal BMI, according to a poster presented by Dr. Almuth Bachmann at the annual congress of the Society of Critical Care Medicine. Patients with BMIs in the overweight or obese ranges had no significantly increased risk of dying.

Dr. Bachmann of Cooper University Hospital, Camden, N.J., and colleagues used a multivariate database to extract data on patients admitted with septic shock. A total of 1,745 patients were included. The researchers considered patients with BMIs of 18.5-24.9 kg/m² to be of normal weight, those with BMI of less than 18.5 to be underweight, those with BMIs of 25-29.9 to be overweight, and those with BMIs of at least 30 to be obese.

The groups did not differ significantly in age or APACHE II (Acute Physiology and Chronic Health Evaluation) severity of disease score. Ventilator dependency and chronic renal failure also were associated with mortality.

—Robert Finn