Tools Predict Community Pneumonia's Course

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SAN FRANCISCO — Two simple new tools may help predict which patients with community-acquired pneumonia are likely to die or to need ICU care, investigators reported in separate presentations at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

The tools could help clinicians flag some patients for more intensive treatment and monitoring, whereas others could be managed as outpatients. Adults with community-acquired pneumonia (CAP) and any of four clinical predictors had an increased risk of death within 30 days in a study of 1,525 patients, Maylee Chen, Pharm.D., said at the meeting, which was sponsored by the American Society for Microbiology.

The odds for 30-day mortality nearly tripled in patients with cerebrovascular disease or hypoxemia (defined as partial pressure of arterial oxygen less than 60 mm Hg, ratio of partial pressure of arterial oxygen to fractional inspiratory oxygen less than 300, or oxygen saturation less than 90% by oximetry). The odds for 30-day mortality doubled in patients with coexisting neoplasm or uremia (defined as a BUN of at least 30 mg/dL), said Dr. Chen, who led the study while a fellow at the University of Louisville (Ky.), and now practices at the Queen's Medical Center, Honolulu.

The 30-day mortality rate in the cohort overall was 16%. Without any of the four predictors, 6% of patients with CAP died within 30 days. Death rates within 30 days ranged from 23% to 55% for patients with one of the four clinical predictors.

Cerebrovascular disease, hypoxemia, neoplasm, and uremia are among 20 criteria used in the Pneumonia Severity Index to predict risk. The study validates use of the simplified model for predicting risk of death from CAP, Dr. Chen said. Patients with the highest risk by the Pneumonia Severity Index (rated class V) were the most likely to die and the most likely to have one or more of the four clinical predictors of death.

Patient data came from the multinational Community-Acquired Pneumonia Organization study. Dr. Chen and her associates also performed a secondary analysis that included 982 patients whose 30-day mortality was unknown—assuming that any patient with an unknown outcome survived—in addition to the 1,525 patients with known outcomes. Each of the four clinical variables remained a significant predictor of 30-day mortality, she said.

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DR. CHARLES

In a separate presentation, Dr. Patrick G. P. Charles of Austin Hospital, Heidelberg, Victoria, Australia, described another assessment tool that may predict the need for ICU care of patients with CAP if a planned prospective study validates preliminary findings.

The SMARTCOP assessment tool gauges risk for ICU care by assigning points to patients based on these characteristics:

- ▶ Systolic blood pressure less than 90 mm Hg.
- ▶ Multilobar chest x-ray involvement.
- ▶ Albumin less than 3.5 g/dL.
- ▶ Respiratory rate (at least 30 breaths per minute in patients aged 40 years or older, at least 25 breaths per minute if younger).
- ▶ Tachycardia of 125 beats per minute, or higher.
- ▶ Confusion.
- ▶ Poor oxygenation.
- ▶ pH below 7.35.

Early data from a study of 849 patients showed the SMARTCOP tool (and an abbreviated version, SMRT-CP) was simpler and as accurate as two tools already used in predicting the need for ICU care, said Dr. Charles and his associates, who compared SMARTCOP and SMRT-CP with the Pneumonia Severity Index and CURB-65. The latter assesses CAP risk based on the presence of confusion, urea nitrogen levels, respiratory rate, blood pressure, and age of 65 years or older.

Overall, 10% of the patients needed ICU care, and 5% died within 30 days. The study excluded patients who were likely to die within 12-24 hours and were admitted for palliative care, so mortality was lower than might be expected. ■