

Antibiotic for 3 Days Can Cure Most Pneumonia

If a similar strategy were employed in routine practice, it could lead to a drop in antibiotic use.

BY MITCHEL L. ZOLER
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WASHINGTON — Three days of antibiotic treatment were as effective as 8 days for curing or substantially improving patients with mild to moderate, community-acquired pneumonia in a controlled study with 119 patients done in the Netherlands.

Patients were randomized to ongoing antibiotic treatment or placebo if they showed substantial improvement following 3 days of intravenous treatment with amoxicillin, Rachida El Moussaoui, M.D., said at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

“The results apply to patients with mild to moderately severe community-acquired pneumonia, which is about 60%-80% of patients who are hospitalized for community-acquired pneumonia,” said Dr. El Moussaoui, an infectious diseases physician at the University of Amsterdam. In addition, the results apply only to patients who substantially improve after their first

‘The results apply to [those] with mild to moderately severe community-acquired pneumonia,’ or about 60%-80% of patients hospitalized for CAP.

3 days of intravenous treatment with amoxicillin. In the study, about 75% of treated patients met this criterion.

“This is an important and well-done study, but it needs validation,” commented Victor L. Yu, M.D., chief of infectious diseases at the Veterans Affairs Medical Center in Pittsburgh. He also questioned whether the finding was applicable to patients with pneumococcal pneumonia, which can be more severe than pneumonia caused by other pathogens.

The study was done at nine hospitals in the Netherlands during 2000-2003 and enrolled patients aged 18 years or older with clinical signs of pneumonia, radiologic evidence of a new lung infiltrate, and a pneumonia severity score of no more than 110. All patients began intravenous therapy with amoxicillin and were reevaluated after 3 days. Patients were then randomized if their temperature was lower than 38 °C and if their scores for several symptoms, including dyspnea, cough, and coughing up sputum, had improved by 2 or more points. They were then treated with either

oral amoxicillin or placebo for an additional 5 days.

The study’s primary end point was clinical success and pneumonia severity score at 10 days after the start of treatment. Based on these criteria, 50 of the 56 patients (89%) who received 3 days of active treatment were cured or significantly improved, compared with 56 of 63 (89%) patients in the group receiving 8 days of treatment, Dr. El Moussaoui reported at the conference, sponsored by the American Society for Microbiology.

The two groups also showed very similar rates of bacteriologic cure and radio-

logic cure. The study’s secondary end point was clinical success at 28 days after the start of treatment. This goal was achieved by 84% of patients who had 3 days of treatment and by 78% of those who received 8 days of treatment. The median hospital length of stay was 6 days in the 3-day group and 7 days in the 8-day group. The incidence of adverse events was 11% in the 3-day group and 21% in the 8-day group.

If a strategy of 3 days of antibiotic treatment were applied to similar pneumonia patients in routine practice, it could lead to a major drop in antibiotic use and might help contain antibiotic resistance. ■

Antibiotic Therapy: 3 Days vs. 8 Days

Measure	3 days of IV amoxicillin (n = 56)	3 days of IV amoxicillin followed by 5 days of oral amoxicillin (n = 63)
Patients cured or improved after 10 days of therapy	89%	89%
Patients cured or improved after 28 days of therapy	84%	78%
Median length of hospital stay	6 days	7 days
Total incidence of adverse events	11%	21%

Source: Dr. El Moussaoui

KEVIN FOLEY, RESEARCH/FORHAD S. HOSSAIN, DESIGN

Five Clinical Factors Predict Pneumonia Treatment Failure

BY MITCHEL L. ZOLER
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WASHINGTON — Five clinical findings at initial presentation in patients with severe, community-acquired pneumonia identified those who failed to respond to the first 3 days of antibiotic therapy in a study with 260 patients.

Prompt assessment of these five clinical flags may potentially distinguish patients who require close monitoring from those who face little risk from an early hospital discharge and oral antibiotic therapy, Martine Hoogewerf, M.D., said at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

But the prognostic value of these five findings requires validation in a larger group of patients before they can be used in routine practice, cautioned Dr. Hoogewerf, an infectious diseases specialist at the University Medical Center in Utrecht, the Netherlands.

The five findings were confusion, a gram-negative infection, an arterial pH of less than 7.35, an arterial oxygen pressure (PO₂) of less than 60 mm Hg, and a diagnosis of heart failure.

In a multivariate analysis of potential predictors of early treatment failure, these five parameters were associated with statistically significant differences in response. The first four factors identified patients with an increased risk of failure, while the presence of heart fail-

ure identified patients with a reduced risk.

Two possible explanations for the “protective” role of heart failure were that some patients with heart failure are mistakenly diagnosed with pneumonia, and that when they actually have pneumonia, it more often has a viral etiology, Dr. Hoogewerf said. Among the patients in the study, 68% of those with heart failure had no identified etiologic pathogen; among the patients without heart failure, 45% had no identified etiologic pathogen.

Dr. Hoogewerf and her associates converted their findings on predictive features into a scoring system. Based on the relative predictive value of these five clinical parameters, they created a scoring scheme that health care workers might use when first evaluating patients with severe, community-acquired pneumonia.

The system scores an arterial pH of less than 7.35 as 3 points, confusion as 2 points, a gram-negative infection as 2 points, an arterial PO₂ of less than 60 mm Hg as 2 points, and heart failure as -2 points.

Among the 260 patients in the study,

61% had a score of less than 2 points, and 18% of these patients had treatment failure after 3 days of antibiotic therapy. Another 35% of patients had a score of 2-4 points, and they had a treatment failure rate of 47%. The remaining 4% of patients had a score of 5 points or higher, and their failure rate was 80%, Dr. Hoogewerf said at the conference, sponsored by the American Society for Microbiology.

Keeping Score: Five Factors Predict Risk

Clinical Factor	Points
Arterial pH <7.35	+3
Confusion	+2
Gram-negative infection	+2
Arterial PO ₂ <60 mm Hg	+2
Heart failure	-2

Source: Dr. Hoogewerf

Score ≥5:
High risk
Score 2-4:
Intermediate risk
Score <2:
Low risk

KEVIN FOLEY, RESEARCH

The study involved adults with community-acquired pneumonia seen at seven hospitals and medical centers in the Netherlands. All patients had either a pneumonia severity index score of more than 90 at their initial evaluation or met the criteria of the American Thoracic Society for severe pneumonia. All patients were started on antibiotic therapy and reassessed 3 days later.

A total of 80 patients (31%) had not re-

sponded to treatment after 3 days. The clinical importance of treatment failure at this time was documented by additional follow-up of all patients. The average hospital length of stay for patients who had early treatment success was 9.6 days, compared with an average length of stay of 13.4 days for the early treatment failures. The difference of 3.8 days was statistically significant.

In addition, patients with early treatment success had a 4.4% mortality rate by 28 days after the start of treatment. Patients who were classified as early treatment failures had a 12% mortality rate 28 days after treatment started.

The multivariate analysis of baseline parameters showed that patients with an arterial pH of less than 7.35 had a 4.46-fold increased risk of treatment failure, compared with patients whose arterial pH was at or above this cutoff. Patients who were confused had a 3.79-fold increased risk of failure, compared with those who were not confused.

Patients with a gram-negative infection had a 3.15-fold increased risk of treatment failure, compared with patients without an identified gram-negative infection. Patients with an arterial PO₂ of less than 60 mm Hg had a 77% increased risk of failure, compared with patients whose arterial PO₂ was at or above this cutoff.

Patients with heart failure had a 68% reduced risk of treatment failure, compared with patients with no heart failure. ■