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More Evidence That Shorter Pneumonia Tx Is Better

— Study on excess duration adds to discussion about shorter-course therapy

by Molly Walker, Associate Editor, MedPage Today

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The majority of patients hospitalized with pneumonia received too many antibiotics, with various patient characteristics associated with excess duration, researchers found.

More than two-thirds of patients received antibiotics for a length of time exceeding the shortest duration consistent with recommended guidelines, and most of this was due to excess prescribing at discharge, reported Valerie M. Vaughn, MD, of the University of Michigan in Ann Arbor, and colleagues.

A multivariate analysis found that factors associated with excess use included having either a positive or negative respiratory culture or non-culture diagnostic test, a longer hospital stay, and high risk antibiotic use in the past 90 days, they wrote in the *Annals of Internal Medicine*.

In addition, community-acquired pneumonia (CAP) was also a predictor of excess duration of therapy, they noted.

The authors wrote that the most common reason for both inpatient antibiotic use and overuse is pneumonia, as patients were traditionally prescribed long durations of therapy due to concerns about short courses leading to relapse or progression. But that school of thought is changing, especially given new information about multi-drug resistant infections and antibiotic-associated adverse events. This has led to hospital antibiotic stewardship guidelines calling for interventions that call for reducing antibiotic therapy "to the shortest effective duration," the authors said.

In an accompanying editorial, Brad Spellberg, MD, of the University of Southern California Medical Center in Los Angeles and Louis B. Rice, MD, of Brown University in Providence, Rhode Island, said that these findings add to the evidence "supporting the antibiotic mantra 'shorter is better.'"

Indeed, the editorialists called for an overhaul from regulatory agencies, payers, and professional societies to convert practice patterns to short-course therapy.

They argued short-course therapy is "underused by clinicians," in part because of the practices of these three stakeholder groups. For regulatory agencies, short-course therapy is not included in hospital regulations on antibiotic stewardship by U.S. and European government agencies, and the FDA requires new antibiotics to use traditional durations versus short-course durations in clinical trials, they said. In addition, payers cover the full duration of antibiotic therapy, regardless of evidence that indicates shorter courses might be more effective, and guidelines continue to recommend traditional length of therapy for many infections.

But Spellberg and Rice urged the profession to "overcome inertia and tradition and change practice" in light of the evidence about short-course therapy. Specifically, they referenced the more than 45 randomized controlled trials and two meta-analyses that found "no difference in efficacy" between shorter and traditional therapy across a variety of infections, including pneumonia.

"After dozens of [randomized controlled trials] and more than a decade since the initial clarion call to move to short-course therapy, it is time to adapt clinical practice for diseases that have been studied and adopt the mantra 'shorter is better,'" they wrote.

Vaughn and colleagues looked at data from 43 hospitals from the Michigan Hospital Medicine Safety Consortium. Patients were included if they had a discharge diagnosis code for pneumonia, symptoms and radiographs consistent with pneumonia, at least 4 days of antibiotic therapy, and antibiotics on day 1 or 2 of hospitalization. Rate of excess antibiotic treatment duration was the primary outcome.

Overall, about 6,500 patients were included in the analysis, about half were women, almost 80% were white, and the median age was around 70. Almost three-quarters had CAP, and 57% had severe pneumonia. About a quarter had a concurrent chronic obstructive pulmonary disease (COPD), and more than three-quarters had at least one blood culture done. Moreover, the large majority of patients improved quickly, and were clinically stable or discharged by day 5.

But 67.8% of patients received antibiotic therapy for longer than the shortest time

recommended by the guidelines, including 72% of those with CAP and 57% of those with healthcare-associated pneumonia.

Median antibiotic duration was 8 days, but median excess duration overall was 2 days. The authors noted that antibiotics prescribed at discharge accounted for about half of total days with antibiotic therapy, and 93% of excess days. Fluoroquinolones (mostly levofloxacin) comprised a little over 30% of discharge prescriptions, but 39% of excess days, with azithromycin and amoxicillin-clavulanate also common.

A bivariate analysis found the rate of excess antibiotic duration was 7% high in patients with sputum production versus those who did not, and there was a lower rate of excess treatment in hospitals with self-reported academic status (RR 0.83, 95% CI 0.70-0.99).

Limitations to the data include potentially underestimating excess durations due to researchers not knowing the exact times when antibiotics were administered, as well as some potential changes in terminology and duration guidelines in regards to healthcare-associated pneumonia. In addition, provider documentation may underestimate adverse events, they said.

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