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Another perspective: Reducing the overtreatment of pneumonia

IN HIS COMMENTARY IN THIS ISSUE, Dr. Vinay Prasad provides a well-supported perspective on the overdiagnosis of pneumonia.

Although I agree that there can be a tendency to overdiagnose pneumonia, we must not overlook the fact that pneumonia is still a leading cause of death in the United States.

See related commentary, page 616

The number of cases of invasive pneumococcal disease (mostly bacteremic pneumonia) in people over age 65 has increased over the past decade.¹ This increase is not the result of overdiagnosis, since the diagnosis relies on the well-established US Centers for Disease Control and Prevention (CDC) surveillance system, which requires a positive culture from a sterile site. However, to an extent, the increase can be explained by the increasing age of our population and by the associated comorbidities.² These comorbidities increase the predisposition to and the severity of pneumonia and adversely affect the outcome—which may also explain why we have seen no significant decrease in the death rate for patients admitted to the hospital.

In addition, a 2012 report³ that drew data from a variety of sources, including

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the CDC, projected that between 2004 and 2040, the US population would increase by 38% and at the same time pneumococcal pneumonia hospitalizations would increase by 96%, since population growth is fastest in older age groups, who have the highest rates of disease.³

Thus, I believe that pneumonia will continue to be a big problem and that we should pursue efforts to prevent it (including vaccinating more people against it) and to better manage it.

I agree that “over-calling” acute respiratory infections as pneumonia is often the result of imprecise diagnosis. Clinical criteria, even a combination of symptoms (cough) and signs (fever, tachycardia, and crackles), are not reliably predictive when using chest radiography as the standard.⁴ This can lead to the overuse of antimicrobials.

The Centers for Medicare and Medicaid Services used to call for starting the first dose of antibiotics within a specified time (at one time it was 4 hours, subsequently it became 6 hours) of presentation to the hospital with community-acquired pneumonia. Although the actual effect was uncertain, many feared that this performance measure would unintentionally lead to the indiscriminate use of antimicrobials to achieve high rates of compliance in patients who have little evidence of pneumonia, in order to not miss a possible case.^{5,6} However, it is important to be aware that this measure was retired in 2012 and is no longer in effect.

**Needed:
Better, faster
ways to
diagnose
pneumonia
and find
the cause**

■ WE NEED BETTER ASSESSMENTS AND TREATMENTS

We need better ways to assess and manage patients with pneumonia. I believe part of the solution to better assessment lies in improved diagnostic tools, and these are now becoming available.

As Dr. Prasad notes, the causative pathogen is rarely identified using standard diagnostic methods. However, polymerase chain reaction testing and measurement of the biomarker procalcitonin may improve our diagnostic accuracy and, hopefully, lead to better outcomes.⁷ The results of these tests can be rapidly available and thus may aid the point-of-care decision to treat or not to treat with antimicrobials and to allow for therapy to be started within an acceptable period. In addition, procalcitonin testing has been shown to help differentiate viral from bacterial causes of respiratory tract infection.

Dr. Prasad states that no randomized trial has compared antibiotics with supportive care in pneumonia. Although this is true for recent trials, historical studies demonstrate that antibiotics reduce death rates in patients with pneumonia.⁸ Indeed, these are the basis for the recent changes in the US Food and Drug

Administration guidance for clinical trials of pneumonia.⁹

Treatment is best when it is directed at the pathogen, but there is little consensus on the practicality of achieving this goal at the primary point of care. A study funded by the National Institutes of Health is about to start enrollment to compare the effect of narrow-spectrum therapy vs the standard of care based on rapid diagnostics.¹⁰ Identification of a specific pathogen will allow directed therapy without the need for a broad-spectrum empiric regimen. In contrast, finding a viral cause without an accompanying bacterial cause will prevent the unnecessary use of antibacterials in many cases. A significant percent of cases of pneumonia in adults are caused by viruses alone.⁶

Thus, the question will not be, "Should we treat community-acquired pneumonia with antibacterials" but rather, "What is the optimal treatment for pneumonia with a defined cause?" This is a major change from an empirical broad-spectrum regimen (treat all likely pathogens) to a more specific approach that has several potential benefits, including better patient outcomes and less emergence of resistance. To paraphrase Dr. Prasad, the time has come to find this out. ■

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The quality measure that called for the first dose of an antimicrobial within a specified time is no longer in effect