HAP/VAP: Simpler may be better

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The authors of the Association of Medical Microbiology and Infectious Disease Canada and the Canadian Thoracic Society guidelines (pages 19-53) dealing with hospital-acquired pneumonia (HAP) and ventilator-associated pneumonia (VAP) are to be congratulated for their hard work and the thoughtful manuscript they have produced. It is clear that a great deal of effort has gone into the preparation of these guidelines, and we have found them to be both interesting and informative. However, we take issue with some of their statements and approaches, particularly in relation to antimicrobial therapy.

Essentially, we disagree with the following:

- The use of severity as a means of stratifying patients;
- The complicated approach to therapy with too many branch points; and
- The overuse of antimicrobials active against *Pseudomonas aeruginosa*.

If we compare and contrast the treatment section of these guidelines with those from the American Thoracic Society – Infectious Diseases Society of America (ATS/IDSA), it becomes immediately obvious that they are quite different (1). The American approach to HAP/VAP certainly has its shortcomings, and there is nothing wrong with disagreeing with this approach as long as the data are there to support such a stance. We feel, however, that such data are lacking. The main determinant in the American approach is whether the patient has risk factors for multidrug-resistant organisms. The Canadian approach, on the other hand, considers not only the risk of infection with resistant pathogens but also severity.

The use of severity of clinical presentation as a means of differentiating among patients is of particular concern to us. The data supporting such an approach are tenuous at best. Most clinicians and investigators would agree that infection with *P. aeruginosa* is more likely to result in a severe clinical presentation than is infection caused by other pathogens. However, there are reasonably well-defined risk factors for infection with *P. aeruginosa*, which can be used to help in the initial antibiotic management decision of such patients. These include severe structural lung disease, use of steroids or broad-spectrum antibiotics, and immunosuppression.

By using severity as a separate variable to consider when devising a treatment regimen, the number of possible options for initial antibiotic management increases dramatically to a total of five groups (three for HAP and two for VAP). It is also not clear why HAP and VAP must be separated in the first place given the other variables of resistance and severity that are being considered.

Even a quick glance at the figures shows what appears to be an inappropriate use of antipseudomonal agents. Patients in groups 1 and 4 are not believed to be at risk of infection with resistant pathogens yet, despite this, both cefepime and piperacillin-tazobactam are listed as therapeutic options. To

confound matters even further, the frequency of administration of piperacillin-tazobactam in groups 1, 2 and 4 is every 8 h, while for groups 3 and 5, it is every 6 h.

The ATS/IDSA treatment recommendations include levofloxacin and ciprofloxacin as possible treatment options for patients not believed to be at risk for multidrug-resistant pathogens. One could argue that these are also potential antipseudomonal agents and their use should be avoided if *Pseudomonas* is not a concern. There is certainly some validity to this argument, but most investigators would not consider these quinolones as effective against *Pseudomonas* as cefepime or piperacillin-tazobactam.

While the data supporting the use of combination treatment for *Pseudomonas* infections are not strong, it is generally believed that initial treatment at least should be with combination therapy. Hilf et al (2) certainly suggest a benefit in terms of reduced mortality when combination therapy is used in cases of bacteremic *Pseudomonas* pneumonia. The ATS/IDSA statement points out that if combination treatment with an aminoglycoside-containing regimen is used, the aminoglycoside can be discontinued after five to seven days, if the patient is responding (1,3). The Canadian document, however, recommends 14 days of combination therapy for *Pseudomonas*. If an aminoglycoside is used as part of this combination, particularly for such a long time, the likelihood of adverse drug reactions increases.

As far as risk of resistance is concerned, the emphasis seems to be on whether the time of onset was early or late, or whether the patient received antimicrobial treatment in the previous 90 days. No mention is made of those patients admitted after a recent hospitalization or patients admitted from a health care facility, such as a nursing home or dialysis centre, which tend to be rather common events.

Certain drugs such as ampicillin-sulbactam are available in the United States but not in Canada, otherwise any arguments that the practice of medicine differs between the two countries would not apply because any fundamental practice differences are not relevant to the current issues at hand.

Among the many features of the Canadian document that we believe are very positive, the attempt to narrow or de-escalate therapy and, in some cases, to discontinue it based on the clinical pulmonary infection score is particularly noteworthy.

REFERENCES

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