Ventilator-Associated Pneumonia

To the Editor:

I read with interest the article by Rello et al in the October 1993 issue of Chest describing the impact of previous antimicrobial therapy on outcome from ventilator-associated pneumonia (VAP). These authors studied 129 consecutive episodes of VAP and found that only prior antibiotic therapy (p<0.001, OR=9.2) independently influenced the risk of death from VAP. This appeared to be due to the effect of the prior antibiotics on the selection of infecting bacteria, eg, Pseudomonas aeruginosa, in these patients. These authors could not address the issue of whether prior antibiotic administration directly predisposes to the occurrence of ventilator-associated pneumonia due to their study design.

In a recent cohort study of 277 consecutive patients requiring mechanical ventilation admitted to our medical, surgical, and cardiothoracic ICUs, four independent risk factors for the occurrence of VAP were identified. These included derangements in the function of three or more organ systems (p<0.001, OR=10.2), patient age ≥60 years (p=0.002, OR=5.1), the prior administration of antibiotics (p=0.004, OR=5.1), and supine patient head positioning during the first 24 hours of mechanical ventilation (p=0.013, OR=2.9). A similar analysis examining mortality as the outcome of interest identified derangements in three or more organ systems (p<0.001, OR=16.1), a restricted premorbid lifestyle (p=0.012, OR=3.1), and supine head positioning in the first 24 hours of mechanical ventilation (p=0.016, OR=3.1) as independent risk factors for mortality.

Taken together these data suggest that prior antibiotic therapy may play an important role in the development of ventilator-associated pneumonia and its outcome due to the selection of antibiotic resistant bacteria. These data further support the recommendation that the unnecessary use of antibiotics should be strongly avoided. Further studies are required to assess the impact of various antibiotics prescribing strategies on the occurrence of VAP and patient outcomes. Additionally, as suggested by our data the relationship between the occurrence of VAP and organ system derangements is more fully assessed.

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REFERENCES
3 Wunderink RG. Mortality and ventilator-associated pneumonia: the best antibiotics may be the least antibiotics. Chest 1993; 104:999-95

To the Editor:

We are grateful for Dr. Kollef’s interest and comments on our article (Chest 1993; 104:1230-35) and appreciate the opportunity to respond to his letter to emphasize the importance of differentiating the cause of death in studies on pneumonia.

Both studies analyzed the relation of a variety of clinical epidemiologic factors to the outcome. Dr. Kollef (JAMA 1993; 270:1965-70), however, used crude mortality as dependent variable while we only used deaths that were directly related to the pulmonary infection. In our current series, we found that the crude mortality was 34.1 percent, while patients died of causes directly related to the pulmonary infection in only 14 percent of the episodes. In addition, we show a close relationship between mortality related to pneumonia and the causal agent; this observation is of great importance because it explains the differences found by different authors. Dr. Kollef found that markers of severity of illness correlate with crude mortality, and we show the association between deaths from VAP and prior antibiotic therapy.

In summary, both analyses are different but complementary, and contribute to improve our understanding of nosocomial pneumonia: the first approach is useful to stratify patients in studies, and our approach has direct implications on the reduction of deaths from pneumonia.

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The Upper Airway Resistance Syndrome

To the Editor:

The article in the September 1993 issue of Chest by Dr. Guilleminault et al1 on the upper airway resistance syndrome (UARS) tells us that excessive daytime somnolence (EDS) affects millions in the Western World, and that in many of these people, UARS may be the cause of EDS. Nasal continuous positive airway pressure (N-C-PAP) eliminated EDS and the abnormal upper airway resistance.

If the problem seems so pervasive with so many people affected, it seems to me that each of the households of the 21st century will have to be furnished with a Central N-C-PAP unit to satisfy the needs of everybody in the family.

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REFERENCE

Providing a Comfortable Fitted Mask

To the Editor:

Wysocki et al1 report on their experience with noninvasive pressure support ventilation in patients with acute respiratory failure. As reported previously by us2 and other reports,3,4 they found that a fraction of patients failed to accommodate to either a face or nasal mask. Wysocki proposes that what is needed is “a well tolerated and a tighter fitted mask.” There may be other solutions to this problem. It was not often possible, in our patients, to positively identify the cause of these failures. Specifically, did the mask itself bother the patient or was the sensation of the increased pressure the culprit? In some cases, a decrease in pressure was a solution to discomfort. Also, an alternative to a tight fitting mask as a solution to the problem is the use of a ventilator that

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