Editorial

Nosocomial Pneumonia

Robert L. Thompson, MD

Nosocomial pneumonia has been increasing in incidence in hospitals throughout the United States during the last two decades. This trend is best demonstrated by surveillance data from the National Nosocomial Infections Surveillance (NNIS) System, which has employed a standard data collection system since 1970. NNIS data, even though weighted toward tertiary care hospitals, demonstrate an increasing incidence of nosocomial pneumonia in all classes of institutions. Nosocomial pneumonia now surpasses postoperative wound infections in frequency in many larger institutions.[1] These changes reflect both the changing demographic characteristics of inpatient populations and the variety of complex medical therapies and surgical procedures employed in their care. The highest attack rates occur on medical and surgical services and in patients who are immunosup pressed, who undergo thoracic or upper abdominal surgical procedures, or are confined in critical care units. Rates of nosocomial pneumonia are substantially higher in patients who are intubated, have a tracheostomy, or are mechanically ventilated, and mortality rates may approach 50% in such populations.[2] Many other predisposing factors leading to nosocomial pneumonia are common in smaller community hospital populations and tertiary care institutions, including advanced age, impaired consciousness, multiple underlying diseases, and the use of antibiotics, antacids, and H_2 antagonists.[3]

Etiologic agents of nosocomial pneumonia include a broad and diverse spectrum of pathogens not frequently encountered in community-acquired infection. ***Pseudomonas aeruginosa,*** members of the enterobacteriaceae family, and ***Staphylococcus aureus*** account for more than 70% of pathogens isolated from lower respiratory secretions in patients reported by NNIS hospitals, vastly outnumbering isolates of ***Streptococcus pneumoniae*** *and* ***Hemophilus influenzae.***[4] *Clinicians also must consider infections caused by* ***Legionella***, ***Mycoplasma***, *and* ***Chlamydia*** *species, as well as anaerobes and respiratory viruses: pathogens not recoverable by routinely available culture techniques.*

Treatment of nosocomial pneumonia is usually chosen empirically at the time of clinical diagnosis and should be influenced by circumstances such as the presence and degree of immunosuppression, previous antibiotic use, surgical procedures, endotracheal intubation, *mechanical ventilation, and the severity and rate of progression of the pneumonia. Knowledge of the institutions' population of endemic nosocomial pathogens and patterns of antimicrobial drug resistance is extremely important in the effective but judicious use of the wide array of potent parenteral antibiotics currently available for the treatment of nosocomial pneumonia.*

Schleupner and Cobb review in this issue the microbiologic diagnosis of nosocomial pneumonia at a university-affiliated, community-based acute and chronic care institution.[5] *Their findings are compiled from a series of prospective, randomized, and* nonrandomized *treatment trials performed during the 1980s. All of the studies used standard criteria and microbiologic techniques in the diagnosis of nosocomial pneumonia. These studies confirm a high incidence of nosocomial respiratory illness from bacterial pathogens more typically associated with* community-acquired *pneumonia. Their findings correlate with a relatively low prevalence of prior antibiotic use and a small number of critically ill and postoperative patients that typify larger and more complex tertiary care institutions.*

Monotherapy for nosocomial pneumonia using extended-spectrum antibiotics active against gram-

From the Group Health Cooperative, Seattle, Washington.
Address *reprint* ***requests to Robert L.. Thompson, MD, Division*** *of* ***Infectious Diseases, Group Health Cooperative, 200 19th Ave. E., Seattle, WA 98112.***
Thompson RL. Nosocomial pneumonia. Infect Control Hosp Epidemiol. *1992;13:513-514.*

negative aerobic bacilli as well as *S pneumoniae* and *H influenzae* appears to be as effective as combinations of antibacterial agents in non-neutropenic populations.[6] The empiric use of these agents in the treatment of nosocomial pneumonia in smaller community hospitals is supported by the experience of Schleupner and Cobb. Prudence, however, suggests that therapy be modified and narrowed when culture and susceptibility tests are available. Because of the frequent emergence of in vitro resistance during treatment with these agents, infection control practitioners and clinicians must remain concerned about the effects that widespread use of extended spectrum antibiotics can have on the endemic nosocomial microbial flora in smaller, community-based healthcare facilities.

REFERENCES

1. Nosocomial infection surveillance, 1984. In: *CDC Surveillance Summaries;* 35 *(1SS).* Atlanta, Ga: Centers for Disease Control; 1986:1755.
2. Pugliese, G, Lichtenberg, DA Nosocomial bacterial pneumonia: *an* overview. *Am J Infect Control.* 1987;15:249-265.
3. Craven DE, Steger KA, Barber TW. Preventing nosocomial pneumonia: state of the art and perspectives for the 1990s. *Am J* Med. 1991;91(suppl 3B):445-535.
4. Scheld WM, Mandell GL. Nosocomial pneumonia: pathogenesis and recent advances in diagnosis and therapy *Rev Infect Dis.* 1991;13(suppl 9):S743-S751.
5. Schleupner CJ, Cobb DK. A study of the etiologies and treatment of nosocomial pneumonia in a community-based teaching hospi*tal. Infect Control Hosp Epidemiol.* 1992;13:515-525.
6. LaForce FM. Systemic antimicrobial therapy of nosocomial pneumonia: monotherapy versus combination therapy. *Eur J Clin Microbiol* Infect *Dis.* 1989;8:61-68.

https://doi.org/10.1086/646590 Published online by Cambridge University Press