Why Are Antibiotic-Resistant Nosocomial Infections Spiraling Out of Control?

Carlene A. Muto, MD, MS

For as long as the Centers for Disease Control and Prevention (CDC) has measured the prevalence of hospital-acquired infections caused by multidrug-resistant organisms, it has been increasing. According to the CDC, more than 70% of the bacteria now causing hospital-acquired infections are resistant to at least one of the drugs most commonly used to treat them. It seems important to control these infections because they have been more costly and more deadly than those due to antibiotic-susceptible strains of the same species. Nevertheless, despite decades of discussing the control of antibiotic-resistant nosocomial infections, there has been little evidence of control in most healthcare facilities in most countries. Several articles in this issue of Infection Control and Hospital Epidemiology evaluate the efforts that have been made by hospitals to control them and may help to explain this failure.

The first of these, by L'Héritleau et al., reports the findings of a nationwide, prospective study designed to describe methods used for diagnosis and surveillance of nosocomial infections and multidrug-resistant organisms in French intensive care units (ICUs). They sought to survey all 573 French ICUs, but only 252 (44%) responded to the written survey. Follow-up telephone interviews of personnel in 143 (47%) of the initially nonresponding ICUs allowed them to increase the overall response rate to 69%. Despite the existence of clearly stated French national guidelines, the authors found that there were “profound differences” in the way that ICUs had implemented the recommendations for surveying for various nosocomial infections. They concluded that great caution must be exercised when comparing data regarding ICU infections among French hospitals. Regarding surveillance for multidrug-resistant organisms, they found that 70% of the respondents performed active surveillance cultures to detect these organisms on admission, whereas 60% did so during the stay; 88% of the responding ICUs flagged carriers of multidrug-resistant organisms so that isolation could be maintained consistently. This indicates important variation among hospitals, and inconsistent use of an effective control measure could help to explain difficulties in controlling multidrug-resistant organisms (i.e., approximately one-third of the time active surveillance cultures were not being performed to identify contagious patients).

A second national survey in this issue of Infection Control and Hospital Epidemiology was designed to examine the extent of implementation of strategies to control multidrug-resistant organisms in U.S. hospitals based on recommendations from a 1994 workshop co-sponsored by the National Foundation for Infectious Diseases and the CDC. Ward et al. surveyed hospitals for compliance with five goals to optimize antibiotic use and five goals to detect, report, and prevent spread of multidrug-resistant organisms. From approximately 7,000 U.S. hospitals, 108 hospitals (1.5%) were randomly selected to receive a survey (excluding Veterans' Affairs hospitals and small- to medium-sized teaching hospitals). The survey response rate was 60%. Approximately half of the responding hospitals were classified as large (> 200 beds) and an equal proportion of those remaining as small (50 to 99 beds) and medium (100 to 199 beds). Survey responses were recorded using a 5-point Likert scale. The mean response regarding...
were not mentioned despite the fact that recent studies have suggested that 85% of all hospitalized patients colonized with methicillin-resistant S. aureus (MRSA) or vancomycin-resistant Enterococcus (VRE) go unrecognized despite decades of trying, we have not yet become very good at optimizing antimicrobial use. As stated earlier, there has been widespread failure to control antibiotic-resistant nosocomial infections due to pathogens such as MRSA and VRE. The five studies discussed in this editorial suggest that a major reason for this failure of control has been the frequent failure of hospitals to use effective measures. What should be done to rectify this situation? Hospitals should begin following an evidence-based approach. The combination of strategies advocated by the SHEA guideline on control of MRSA and VRE, emphasizing identification and containment of spread, is the most effective method documented to date for controlling multidrug-resistant organisms. Notably, it has been recommended by the CDC for control of "important" pathogens ranging from severe acute respiratory syndrome to vancomycin-resistant S. aureus. The recent, draft Healthcare Infection Control Practices Advisory Committee guideline proposed intensifying prevention interventions for multidrug-resistant organisms whenever there is evidence of their continuing transmission within a facility. As the overall prevalence of multidrug-resistant organisms continues to increase nationally, one might...
suspect that there is evidence of continuing transmission in most, if not all, U.S. healthcare facilities, which have primarily relied on standard precautions as most patients colonized with multidrug-resistant organisms have not been sought, identified, or isolated. By contrast, hospitals that have used the approach advocated in the SHEA guideline have repeatedly shown control of endemic or epidemic MRSA and VRE infections. Twenty-five such reports were presented at the past two SHEA annual meetings.

REFERENCES


19. Salgado CD, Farr BM. What proportion of hospital patients colonized with methicillin-resistant Staphylococcus aureus are identified by clinical microbiology cultures? Presented at the 13th Annual Meeting of the Society for Healthcare Epidemiology of America; April 5-8, 2005. Arlington, VA.


