



Symposium 17.2

Multiresistant *Pseudomonas aeruginosa*

Po-Ren Hsueh

Divisions of Clinical Microbiology and Infectious Diseases, Departments of Laboratory Medicine and Internal Medicine, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan

Pseudomonas aeruginosa is a major pathogen causing nosocomial infection, particularly among immunocompromised patients or patients treated at intensive care units (ICUs), where antibiotic use is greatest. Beta-lactam antibiotics (such as ceftazidime, cefepime, and ceftipime), fluoroquinolones, aminoglycosides, and carbapenems are commonly used for treating *P. aeruginosa* infections with either as single agent or in combinations. Intensive use of these antimicrobial agents has facilitated the rapid emergence of resistance in this organism. Carbapenem-resistant and even multidrug-resistant or pandrug-resistant *P. aeruginosa* (MDRPA) strains, which were resistant to nearly all antimicrobial agents available for clinical use (cephalosporins, piperacillin-tazobactam, aztreonam, carbapenems, ciprofloxacin, and aminoglycosides), have been reported as the cause of nosocomial outbreaks of infections in patients hospitalized at ICUs or in burn units. Although the majority of clinical isolates of MDRPA are colonizers or have an uncertain pathogenic role, they can cause various invasive infections (bacteremia and ventilator-associated pneumonia) in severely ill patients associated with a poor clinical outcome. Infection due to MDRPA is potentially a treatable disease. In vitro synergism and in vivo efficacy of two agents with resistance in vitro, such as cefepime plus amikacin or isepamicin, has been demonstrated for MDRPA. An old agent, colistin, which has excellent in vitro activity against MDRPA, offers an additional therapeutic option. The new emergence of MDRPA may be a harbinger of the so-called post-antibiotic era. A stringent antibiotic control policy should be exercised as part of efforts to control the emergence and spread of this multi-resistant organism and strict compliance with basic and potential infection control measures is essential to reduce the likelihood of nosocomial spread of infection.