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More and more third generation cephalosporin-resistent enteric bacteria everywhere?

Antimicrobial resistance of major nosocomial pathogens isolated from 20 Korean hospitals in 2014

H. Lee[1], I.K. Bae[2], S.H. Jeong[3]

[1]*Catholic Kwandong University, Incheon, Korea*

[2]*Silla University, Busan, Korea*

[3]*Yonsei University, Seoul, Korea*

Introduction: Antimicrobial resistance become a serious public health problem in worldwide including Korea. Because antimicrobial resistance can be different in countries depending on the countries, national surveillance for antimicrobial resistance should be performed regularly to establish appropriate strategy to overcome antimicrobial resistance. We aimed to determine the prevalence of resistance among major nosocomial pathogens isolated from Korea in 2014.

Methods: Antimicrobial susceptibility data for major bacterial pathogens from January to June in 2014 were collected from 24 university and general hospital laboratories enrolled in Korean Antimicrobial Resistance Monitoring System (KARMS) which was supported by Korean Centers for Diseases Control and Preventions. Antimicrobial susceptibilities were tested by broth microdilution methods using Vitek II or Microscan systems.

Results: The proportion of methicillin-resistant isolates of *S. aureus* (MRSA) was 65% among 27,002 isolates, but the proportion was much lower in outpatient department as 44%. Vancomycin-nonsusceptible *S. aureus* was not detected. The rates of vancomycin-resistant enterococci were 1% in *E. faecalis* (13,732 isolates) and 34% in *E. faecium* (12,885 isolates). The rate of resistance to linezolid in *E. faecium* was 0.9%, but 65% of hospitals reported linezolid-resistant *E. faecium*. Among 1,832 isolates of *S. pneumoniae*, 7% of isolates was resistant to penicillin G in Korea. The resistance rates of *E. coli* (48,823) and *K. pneumoniae* (19,565)were: to the 3rd and 4th generation cephalosporins 24-29% and 34-38%, to cefoxitin 10% and 19%, and to fluoroquinolone 44% and 29%, respectively. The resistant rates of *E. coli* and *K. pneumoniae* to carbapenem were 0.2-0.6% and 1-3%, and most of hospitals reported carbepenem-nonsusceptible *E. coli* (60%) and *K. pneumonia* (90%). The proportions of imipenem-resistant isolates of *P. aeruginosa* (15,007 isolates) and *A. baumannii* (19,763 isolates) were 32% and 75%, respectively.

Conclusions: In Korea, the prevalence of MRSA and vancomycin-resistant *E. faecium* were still high. The 3rd generation cephalosporin-resistant *E. coli* and *K. pneumoniae* further increased slightly and carbepenem-resistant *E. coli* and *K. pneumoniae* were not common but emergence was warranted. The high prevalence of carbapenem-resistant *A. baumannii* became a major threat in Korea. A further study is required to determine the epidemiology of resistance to carbapenem in gram-negative bacilli.