A Multiplex PCR Assay for the Rapid Detection of Methicillin-resistant Staphylococci Isolated from Tehran Hospitals

Neda Razavi Davoodi*[1]; Jalil Vand Yousefi[1]; Seyed Davar Siadat[2]; Naser Harzandi[1];

1-Department of Microbiology, Faculty of Basic Science, Karaj Azad University, Karaj, Iran

2- Department of Hepatitis and AIDS, Pasteur Institute of Iran, Tehran, Iran

neda_raz23@yahoo.com

Background & Objectives: *Staphylococcus aureus* and Coagulase-negative staphylococci (CoNS) are major nosocomial pathogens. The frequencies of methicillin-resistant *Staphylococcus aureus* (MRSA) and methicillin-resistant coagulase-negative staphylococcus (MRCoNS) infections are a worldwide concern. In the present study, using multiplex PCR assay for the detection of Staphylococcus genus (16S rRNA gene), to determine the prevalence of methicillin-resistant staphylococci (mecA gene), to discriminate between S. aureus and CoNS (femA gene).

Methods: A total of one hundred thirty clinical staphylococcal isolates recovered from blood, tracheal aspirate, urine and wound specimens were used in this study. Then polymerase chain reaction was used to detect 16S rRNA , femA and mecA genes.

Results: The results showed that all isolates harbored the 16S rRNA. The mecA gene was detected in 56 isolates (56%) of 100 S.aureus isolates and 21 isolates (70%) of 30 CONS isolates. Detection rates of femA in S. aureus were 100%, but neither of these genes were found in CoNS.

Conclusion: This assay represents a rapid, accurate, and reliable approach for the detection of methicillin-resistant staphylococci and offers the hope of preventing their widespread dissemination through early and reliable detection.

Keywords: *Staphylococcus aureus*; Coagulase-negative Staphylococci; MecA Gene; FemA Gene; 16S rRNA