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Prevalence of macrolide-resistant *Mycoplasma pneumoniae* in South Korea

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Statement of the Problem: *Mycoplasma pneumoniae* is still a common cause of community acquired respiratory tract infections in younger adults and children. A macrolide combined with ß-lactam is considered the most appropriate empirical therapy for patients with community acquired pneumonia in South Korea. However, macrolide-resistant *M. pneumoniae* (MRMP) is steadily reported in South Korea and other countries. Rates of resistance amongst paediatric populations with lower respiratory tract infections and community acquired pneumonia have been reported to range from 30% to 90% in Northeast Asian countries like Japan and China. The purpose of this study was to determine the prevalence of common point mutations responsible for encoding high-level macrolide resistance in confirmed *M. pneumonia* samples from South Korea.

Methodology: We developed multiplex real-time PCR assay for reporting clinically important macrolide resistance related mutations (A2063G and A2064G in 23S rRNA) in *M. pneumoniae*. In a period from Jul 2017 to Jan 2018, a total of 21,873 patient samples were collected and tested for respiratory bacteria, using Seegene Anyplex PCR (Seegene, Korea). Then samples resulting in positivity for *M. Pneumoniae* subsequently underwent Laboratory developed multiplex PCR for Macrolide resistance.

Findings: Among 21,873 respiratory samples submitted for pneumonia, 306 showed *M. pneumoniae* positive results (306/21873, 1.4%). The prevalence rate of A2063G mutation among 306 *M. pneumoniae* positive cases was 69.9% (214/306). No A2064G mutant organism was found in our experiment.

Conclusion & Significance: Macrolide-resistant *M. pneumoniae* is increasing worldwide, predominantly in the Northeast Asia. This becomes a significant health-care problem, especially in the pediatric population where alternative antibiotics such as tetracyclines or fluoroquinolones is usually contraindicated. MRMP has yet to be identified as a significant problem in South Korea. This study has utilized real time multiplex PCR in evaluating the presence of MRMP in samples collected in South Korea. Interestingly no A2064G mutation were identified, which were usually found in studies from Japan or China, despite of testing somewhat large scale of specimen. Surveillance of *M. pneumoniae* isolates is warranted to monitor any evidence of emerging resistance, particularly in the setting of clinically suspected macrolide treatment failure. This study provides valuable baseline data for future comparison.

Biography

Hyewon Park has her expertise in laboratory medicine and clinical microbiology. She has completed her graduation from Seoul National University Medical School and trained in Seoul National University Hospital. She has completed her PhD from the same university. Now, she works in Seegene Medical Foundation, a commercial clinical laboratory in Seoul, South Korea. She has developed this multiplex PCR after years of experience in research and evaluation both in hospital and clinical molecular laboratory.

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