

Macrolide resistance and genotypic characterization of *Streptococcus pneumoniae* in Asian countries: a study of the Asian Network for Surveillance of Resistant Pathogens (ANSORP)

ABSTRACT

Objectives: To characterize mechanisms of macrolide resistance among *Streptococcus pneumoniae* from 10 Asian countries during 1998-2001.

Methods: Phenotypic and genotypic characterization of the isolates and their resistance mechanisms.

Results: Of 555 isolates studied, 216 (38.9%) were susceptible, 10 (1.8%) were intermediate and 329 (59.3%) were resistant to erythromycin. Vietnam had the highest prevalence of erythromycin resistance (88.3%), followed by Taiwan (87.2%), Korea (85.1%), Hong Kong (76.5%) and China (75.6%). Ribosomal methylation encoded by *erm(B)* was the most common mechanism of erythromycin resistance in China, Taiwan, Sri Lanka and Korea. In Hong Kong, Singapore, Thailand and Malaysia, efflux encoded by *mef(A)* was the more common in erythromycin-resistant isolates. In most Asian countries except Hong Kong, Malaysia and Singapore, *erm(B)* was found in >50% of pneumococcal isolates either alone or in combination with *mef(A)*. The level of erythromycin resistance among pneumococcal isolates in most Asian countries except Thailand and India was very high with MIC₉₀s of >128 mg/L. Molecular epidemiological studies suggest the horizontal transfer of the *erm(B)* gene and clonal dissemination of resistant strains in the Asian region.

Conclusion: Data confirm that macrolide resistance in pneumococci is a serious problem in many Asian countries.

Keyword: Erythromycin; *erm(B)*; *mef(A)*; Pneumococci