



Macrolide resistance in mycoplasma species: how do we treat atypical pneumonia?

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Community acquired pneumoniae (CAP) remains a leading cause of morbidity and a significant cause of mortality worldwide. Many studies found *S. pneumoniae*, *M. pneumoniae* and *Chlamydia* were the most common pathogens. It is necessary to determine the *M. pneumoniae* as the causative pathogen in CAP in both adults and children.

The major clinical treatment for *M. pneumoniae* infection was using macrolide antibiotics. With the widespread use of the drug, macrolide resistant isolates have been reported world wide. The resistance mechanism has been identified to be point mutation in 23S rRNA gene. In recent years, macrolide resistant *M.pneumoniae* has become very serious in Asia and has attracted the attention of scientists. In China, many authors demonstrated the extremely high prevalence of macrolide-resistant *M. pneumoniae* not only in pediatric patients (83% - 90%) but also in adult patients (68.7%) (Xin D, et al. Antimicrob Agents Chemother 2009, 53:2158-2159; Liu Y, et al. Antimicrob Agents Chemother 2009, 53:2160-2162; Cao B, et al. Clin Infect Dis 2010, 51:189-194.)

Patients infected by macrolides-resistant *M. pneumoniae* required significantly longer duration of antibiotic therapy with longer time to resolution of fever. Quinolones were better than β -lactams, macrolides, or β -lactam+macrolides in resolution of fever of *M. pneumoniae* pneumonia. (Cao B, et al. Clin Infect Dis 2010, 51:189-194.)

When talked to diagnosis of macrolide-resistant *M. pneumoniae*, minimum inhibitory concentrations (MICs) assay is the traditional method and gold standard. Recently, there are several reports on the molecular diagnostic method based on the association between macrolide-

resistance and gene mutation in 23S rRNA gene, including real-time PCR, high-resolution melt analysis (Bernard J, et al. *Antimicrob Agents Chemother* 2008, 52: 3542–3549), and allele-specific-PCR (LI Shao-li, et al. *Chinese Medical Journal* 2012;125: 2671-2676).