

Letter to the Editor



Antimicrobial Susceptibility of *Streptococcus* sp. to Quinupristin-dalfopristin in China*

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This study aimed to determine the *in vitro* activity of quinupristin-alfopristin against *Streptococcus* sp. isolated in China. This agent is not yet available for clinical use, but it has been tested against a high proportion of resistant *Staphylococcus aureus* strains. A total of 156 streptococcal isolates, which were recovered from various geographic areas and diseases, were tested using the Etest (AB Biodisk, Solna, Sweden). Quinupristin-alfopristin showed excellent activity against all of the tested streptococci isolates. These results provide useful data for the clinical use of quinupristin-alfopristin in China.

The antimicrobial resistance of streptococci remains a serious public health problem worldwide. In China, although lactam-resistant strains are rare, macrolides resistance in streptococci is common. In recent years, an increasing number of studies have reported streptococcal antibiotic resistance. In an outbreak of scarlet fever caused by group A streptococcus (GAS) *Streptococcus pyogenes* in China in 2011, the rate of resistance to macrolides was as high as 100%. Researchers in Hong Kong reported a novel mobile element that was designated ICE-emm12, which contains the *ermB* and *tetM* genes encoding macrolide-incomycin-treptogramin resistance and tetracycline resistance, respectively^[1-2]. Moreover, several genetic elements involved in antibiotic resistance are horizontally transferred among different Lancefield groups and within species^[3]. An outbreak of a streptococcal infection consisting of highly virulent and drug-resistant strains would be disastrous for humans. Therefore, identifying a new drug that is more therapeutic for streptococcal infections is important.

Quinupristin-alfopristin, the first semisynthetic

injectable streptogramin antibiotic, has been approved by the United States Food and Drug Administration for the treatment of adults with serious bacteremia infections involved in methicillin-susceptible *Staphylococcus aureus*, vancomycin-resistant *Enterococcus faecium*, and *Streptococcus pyogenes*^[4-10]. Quinupristin-alfopristin is not yet available for clinical use in China, but a high proportion of resistant *S. aureus* strains has been documented^[11-12]. Therefore, in this study, the *in vitro* activity of quinupristin-dalfopristin against streptococcal isolates in China was determined.

A total of 156 strains were collected from patients with different streptococcal infections, including acute glomerulonephritis, scarlet fever, and tonsillopharyngitis, as well as from healthy carriers, between January 2006 and August 2011. These strains were isolated according to β -hemolysis on trypticase soy agar containing 5% sheep's blood, and were Lancefield grouped as GAS, group B streptococcus (GBS), group C streptococcus (GCS), group F streptococcus (GFS), and group G streptococcus (GGS) using a streptococcal grouping kit (BioMe'rieux, Marcy L'Etoile, France). All of the isolates were stored at -70 °C in brain heart infusion broth containing 15% glycerol until testing. Among the 156 tested strains, 109 that tested positive for GAS were mainly recovered from patients with acute glomerulonephritis, scarlet fever, and tonsillopharyngitis. Fifteen GBS, two GCS, 26 GGS, and four GFS samples were isolated from patients with acute glomerulonephritis or tonsillopharyngitis in Guizhou Province (Table 1). Susceptibility tests were performed using the Etest (AB Biodisk, Solna, Sweden) in Mueller-Hinton agar supplemented with 5% sheep's blood in accordance with the 2011 Clinical and Laboratory Standards Institute guidelines.

doi: 10.3967/bes2014.065

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*This work was supported by funding from the China Mega-Project for Infectious Disease (2011ZX10004-001) and a grant from the National Technology R&D Program in the 12th Five-Year Plan of China (2012BAI06B02).

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Received: January 16, 2014;

Accepted: March 16, 2014

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