OUTBREAK OF SCARLET FEVER ASSOCIATED WITH EMM12 TYPE GROUP A STREPTOCOCCUS IN 2011 IN SHANGHAI, CHINA

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Background and aims: An unprecedented large outbreak of scarlet fever among children occurred in Shanghai in 2011. The objective of this study is to investigate the 2011 scarlet fever outbreak in Shanghai and molecular epidemiological markers of circulating GAS isolates, as well as to monitor current antibiotic resistance of GAS.

Methods: We analyzed the demographic and seasonal characteristics of children with scarlet fever and outcome. During the peak month of the 2011 outbreak, 45 GAS isolates recovered from 114 pediatric patients and 13 (43.3%) GAS isolates recovered from 30 asymptomatic contacts were characterized by emm typing, superantigen profiles, PFGE genotypes and MLST and antimicrobial susceptibility.

Results: 1282 culture-proven scarlet fever cases were reported from our Hospital between January and August 2011. Boys outnumbered girls (65.1% versus 34.9%). Preschool and primary school children accounted for 96% of cases. No severe outcome was found. The 2011 outbreak of scarlet fever started in April and peaked in May and June. emm1, emm12 and emm75 were identified among 58 GAS isolates and 53 (91.4%) isolates belonged to emm12, st36. Ten PFGE genotypes were identified among emm12 GAS isolates, 43 (81.1%) shared SPYS16.001 genotype and the remaining seven genotypes detected were related to SPYS16.001 closely or possibly. No speA and speM were detected in 58 isolates. All emm12 GAS isolates were resistant to azithromycin and clindamycin.

Conclusions: emm12 GAS strain caused the 2011 large outbreak of scarlet fever in Shanghai. The antibiotic resistance to macrolides and clindamycin in GAS was serious currently in Shanghai.