

Abstract

Group B streptococci (GBS) are one of major pathogens in newborns and women. In addition, GBS also increasingly draw attention for adult infections recently. Although this is an important infection in Taiwan, the epidemiology and pathogenesis of GBS infection remains unclear. The main scope of research is focused on the epidemiological study as well as investigation of possible virulent factors of GBS. Both capsule serotyping and pulsed field gel electrophoresis (PFGE) were utilized to analyze fifty-one clinical isolates harvested from sterile sites in patients with community-acquired infections at a tertiary hospital of southern Taiwan. The first-year focus of study is delineated the concordance between the two different typing methods, and whether the plasmid contributes to the pathogenesis of GBS. According to the epidemiological study, it was shown that the ratio of adult to newborn was 2:1, with mortality of 28% and 21%, respectively. Most of neonate GBS infectious disease was meningitis (32%), followed by pneumonia (27%). Pneumonia is the most likely complication of GBS infection developed within 24 hours of delivery; on the other hand, meningitis was the most common infections beyond 24 hours of delivery. Comparatively, most adult GBS infections were primary bacteremia, followed by soft tissue infections including necrotizing fasciitis. Statistical significance was evident in the clinical presentation of GBS infection among newborns as well as adults. Characteristically, many underlying diseases were found among the adult patients with GBS infections, diabetes mellitus (34%), hepatitis (28%) and cirrhosis of liver (25%) were the most common three entities. This explicitly indicates that a vast majority of our patients are threatened by GBS. The analysis of capsule serotype and PFGE were completed, the predominant serotype among the 51 isolates was type III, V, Ia accounting for 45, 22 and 18% of the isolates, respectively. Serotype III was more prevalent in child than in adult (65% vs 35% ? HHFp <0.01). Adult patients were more likely to have infections caused by serotype V than child (9% vs 91%; p = 0.037). Of the neonatal infections, most newborn infections were caused by serotype III; and type V contributed to the most adult infections (p <0.05). This highlights the characteristic of geographical distribution of GBS infection worthy of further surveillance. Combined with both methods, there were significant linking noticed between PFGE type 12 and serotype Ia, type 1 and serotype III, and type 4 and serotype V (p <0.05). On the contrast, there was none of concordance between the typing and infection entity. The overall resistance rate to erythromycin was astonishingly high of 42%, this indicates implicitly there still is selective pressure in the local community. Further, 37% was resistant to clindamycin, an important first-line antibiotic against Gram-positive infections. All of serotypes Ib and VI were resistant to erythromycin. Convincingly, the issue of antibiotic resistance is worth continuing surveillance. From the plasmid analysis, it was found that only 5 clinical isolates possessed individual plasmid with a size raging from 5 to 12 kb. None of linkage was established between the presence of plasmid and typing of GBS. It is speculated that plasmid dose not play critical role for GBS infections. Accordingly, molecular pathogenesis is deserved further investigation and some other virulence factors will be anticipated for GBS infections. This would help elucidate the mystery of how newborns of human being fight against infections, and find a novelty to prevent the GBS infections as well.

**Keywords : Group B streptococcus ; Molecular epidemiology ; Capsule serotype ;
Pulse field gel electrophoresis**