

P1529

Poster Session VI

**Molecular epidemiology of pneumococcal serotypes and beta-haemolytic streptococci
EPIDEMIOLOGICAL SURVEY AND CHARACTERISATION OF STREPTOCOCCUS AGALACTIAE
ISOLATES FROM THE SEMMELWEIS UNIVERSITY CLINICS, BUDAPEST, HUNGARY**

S. Kardos¹, K. Laub¹, A. Tűth¹, K. Kristűf², E. Ostorh-zi³, K. Nagy¹, O. Dobay¹

¹Institute of Medical Microbiology, Semmelweis University, Budapest, Hungary ; ²Institute of Laboratory Medicine, Semmelweis University, Budapest, Hungary ; ³Institute of Dermatology Dermatooncology and Venerology, Semmelweis University, Budapest, Hungary

Objectives: *Streptococcus agalactiae* (GBS, group B *Streptococcus*) is one of the most important causes of neonatal sepsis and meningitis. The infection of newborns originates mostly from maternal colonisation, in the vagina and the lower gastrointestinal tract. Moreover, GBS has recently been more frequently associated with infections in non-pregnant adults, especially with some underlying disease such as diabetes.

Methods: We have surveyed 205 GBS isolates collected between 2008-2011, 115 of these originating from pregnancy screening (mothers and/or newborns), and 90 from other adult infections. After the thorough identification of the isolates, we determined their antibiotic sensitivity with agar dilution, and in the case of macrolide resistant strains, we also detected the *erm* and *mef* resistance genes. We identified the serotypes of the strains with antisera and PCR, and we detected the presence of the major surface proteins (alpha-C, rib, alp2, alp3, and epsilon). At the genotypic level, we identified the ST-17 and ST-23 hypervirulent clones, and to refine the genetic relatedness of the first clone, we used the PFGE method.

Results: Regarding the antibiotic susceptibility, luckily all isolates were fully penicillin sensitive. On the other hand, macrolide resistance proved to be a major problem: 24,4% of the isolates showed the MLS_B phenotype (i.e., resistant to both erythromycin and clindamycin), these all carried the *ermB* gene, as expected. Moreover, 31 strains carried the *ermB* gene, but were phenotypically macrolide sensitive. Seven strains had the *mef* gene.

The majority of the isolates were serotype III (31,2%), followed by types V and Ia (22,5% and 20,5%, respectively). We could identify a single serotype VI strain, but no VII or VIII were found. The serotypes showed strong correlation with the presence of surface proteins: rib was associated mostly with type III, alp2/3 with type V, while epsilon with type Ia. Strikingly, the vast majority (65,4%) of the strains belonged to the ST-23 clone (mainly serotype V, but also Ia, Ib, II, III and IV), and in 31,7%, ST-17 was identified (these were always serotype III). Within the ST-17 clone, PFGE analysis could identify 4 smaller clusters.

Conclusions: In summary, with this study we could hopefully contribute to the better understanding of the epidemiology of *S. agalactiae* in Hungary, and so, enhance the introduction of obligatory pregnancy screening. As 97,1% (199/205) of the isolates belonged to either the ST-17 or the ST-23 clone, we suggest that detection of these clones should be included in the screening. Additionally, as in case of penicillin allergy, clindamycin is administered as intrapartum antibiotic prophylaxis, susceptibility testing to macrolides and related drugs should always be routinely performed.