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ePoster Viewing

Microbial pathogenesis & virulence

Epidemiology and characterization of invasive *Neisseria meningitidis* serogroup Y isolates in Basque country (Northern Spain) from 1995 to 2014

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Background: *Neisseria meningitidis* serogroups B and C isolates are the main cause of meningococcal disease in Western countries. Distribution of other serogroup isolates is unpredictable both in time and geographical distribution. Together with a decrease in the incidence of serogroups B and C in recent years, an apparent increase of meningococcal infections caused by serogroup Y was suspected in our region. The aim of this work was to describe the current epidemiology of serogroup Y in our area.

Material/methods: A retrospective study of 20 years (1995-2014) was performed at Donostia University Hospital, northern Spain. In this work, all *N. meningitidis* isolates from invasive clinical samples were included. The serogroup designation was performed by latex agglutination with the group-specific capsular polysaccharides A, B, C, W135 and Y (Murex Biotech Ltd., Dartford, England). The meningococcal strains were defined by variable regions in the Porin (*PorA*) and the Ferric enterobactin transport protein A (*Fet A*). Genotyping was carried out in all isolates by MLST. Antibiotic susceptibility was determined by the Epsilon test method. The results were analyzed according to CLSI criteria.

Results: Overall 675 invasive *N. meningitidis* isolates were analyzed during the study period. Among all isolates, 2 belonged to serogroup A, 470 to serogroup B, 163 to serogroup C, 12 to serogroup W135, 3 to serogroup X, 23 to serogroup Y and 2 to serogroup Z. Invasive episodes caused by serogroup Y isolates ranged third in the entire period and second during the last 6-year period. From 2009-2014 number of isolates by serogroup were: 81 (76,4%) B; 9 (8,5%) Y; 6 (5,7%) W135; 5 (4,7%) C; 3 (2,8%) X; 2 (1,9%) Z. Serogroup Y distribution (in percentage on total episodes) was uneven both in time and in the age of the patients. The annual circulation over time ranged from 0 to 16.66%. Most serogroup Y invasive episodes were seen in adult patients (18/23). While serogroup Y isolates were the most frequent ones among elderly ≥ 65 years, they were absent among children under 3 years old. The sequence type (ST) as well the clonal complex (CC) distribution was quite heterogeneous with twelve different STs and 9 CC among the 23 isolates. Four isolates each belonged to ST1768 and ST23. The remaining 10 STs harbored only one or two isolates each. All isolates were cefotaxime sensitive but 13 out 23 isolates (60.9%) showed a penicillin MIC > 0.12 mg/L and 7 of them had a MIC equal or greater than 0.5 mg/L

Conclusions: After conjugated-serogroup-C-vaccine inclusion in our region, serogroup Y isolates were the second more prevalent etiologies of meningococcal disease. Most serogroup Y episodes

affected adult people and most isolates showed diminished penicillin susceptibility. Genosubtyping demonstrated the heterogeneity in serogroup Y.