O202

2-hour Oral Session

Predominance of enterovirus B viruses as cause of viral meningitis in a UK Midlands population, 2008, 2011-2014

C.W. Holmes[1], H. Osman[1], J. Tang[1]

[1]*University Hospitals of Leicester NHS Trust, Leicester, United Kingdom*

Objectives: Viral meningitis is usually a self-limiting disease, affecting all ages, typically presenting with fever, headache, neck stiffness, photophobia, nausea and vomiting. With a growing number of enterovirus-associated viral meningitis cases in recent years (including a significant proportion occurring out of season), our aim was to review and analyse the genotype mix of these viruses in our regional population.

Methods: Each enterovirus RNA PCR positive cerebrospinal fluid (CSF) sample received for diagnostic testing in our laboratories is routinely sent for confirmation and genotyping at the national reference laboratory (Public Health England, Colindale). Genotyping was based on the sequencing of a short (~360 bp) region of VP1. The genotype results for 2008 (data from 2009-2010 was not available), 2011-2014 was summarised, tabulated, and analysed by age and year of isolation.

Results: A total of 172 enterovirus positive CSFs were successfully genotyped. By year of collection, these were: 21 (2008), 8 (2011), 53 (2012), 58 (2013), 31 (2014 to September). Overall 165/172 belonged to the B species enteroviruses (echovirus 5, 6, 7, 9, 11, 13, 16, 17, 18, 21, 25, 30; coxsackie B1, B2, B3, B4, B5, A9) , with only 7 belonging to the A species enteroviruses (coxsackie A2, A6, A16 and enterovirus 71). There was a strong age stratification with 81/170 (47.6%) of cases being in infants (under 1 year old), 75/170 (44.1%) in adults (18 years and older), and only 14/170 (8.2%) in 1-17 year olds (2 samples were from patients whose age was not available). Echovirus 30 predominated in the adult population (37.3% of cases) and was the most frequently identified serotype in 2008, 2013 and 2014. Echovirus 6 was the predominant strain in 2012. In contrast, in the infant population no single genotype predominated. The most commonly identified genotypes by year were coxsackie B4 in 2008, coxsackie B1 in 2012, coxsackie B3 in 2013 and coxsackie B5 and echovirus 7 in 2014. Numbers in the 1-17 year olds remained low at 2-4 cases per year, with a mixture of echovirus 6, 18, 30 and coxsackievirus A2, A6 and B1.

Conclusion: The most striking findings in this study were the predominance of viral meningitis cases due to one of the enterovirus B species genotypes, the marked predilection for the infant and adult age groups and the predominance of echovirus 30 in the adult population. Although the numbers of cases are relatively small, this is representative of those patients presenting to healthcare services who are sufficiently ill to require a lumbar puncture to obtain CSF for diagnostic virology testing. More thorough, systematic surveillance is needed to understand the epidemiology of this disease, further, but may be hampered by the invasive nature of this procedure to obtain CSF for testing.