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2nd International Conference on

PARASITOLOGY

August 01-03, 2016 Manchester, UK

Molecular diversity of Cryptosporidium species from human cases in Scotland

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Cryptosporidium, a coccidian parasite has been implicated in numerous waterborne and food-borne outbreaks associated with human and livestock disease. As part of outbreak investigations, the Scottish Parasite Diagnostic and Reference Laboratory, Glasgow (SPDRL) apply a glycoprotein (GP60) PCR/DNA sequencing-based approach to determine *Cryptosporidium* species/ subtypes from human isolates in Scotland. In 2014, 79 samples were speciated and shown to be *C. parvum* (n=48), *C. hominis* (n=29) and *C. meleagridis* (n=2). Eleven *C. parvum* isolates were sub-typed as part of outbreak investigations and consisted soley of the IIa family with 6 subtypes identified, namely IIaA13G1R2 (n=1), IIaA15G2R1 (n=2), IIaA16G2R1 (n=3), IIaA17G1R1 (n=3), IIaA18G2R1 (n=1) and IIaA21G4R1 (n=1). Eleven *C. hominis* isolates sub-typed as part of the same outbreak investigation were shown to be IbA10G2 (n=4) and IbA6G3 (n=7). The age of the infected patients ranged from <1-10 years (n=24), 11-20 (n=13), 21-30 (n=20), 31->60 (n=22). More females (n=48) than males (n=31) were infected and only 4 cases had travel history stated. A peak of *C. parvum* cases occurred during April (n=14) and May (n=12), whereas most *C. hominis* cases occurred later in the year during October (n=5) and November (n=13). This update demonstrates the high degree of diversity of *Cryptosporidium* subtypes within Scotland.

Biography

Lisa Connelly is a Biomedical Scientist at SPDRL, where she has been based since 2005. She has keen interest in research and development. Her recent publications include the molecular characterization of *C. parvum* isolates from human cryptosporidiosis cases in Scotland and *Cryptosporidium* species from human immunodeficiency-infected patients with chronic diarrhea in Jakarta, Indonesia.

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