Abstract (poster session)

**Molecular analysis of Giardia assemblages and clinical outcome in the Scottish population**

E. Ritchie, K.G. Pollock, B. Jones, C.L. Alexander* (Glasgow, UK)

Giardia lamblia, an intestinal parasite, exists as assemblages where A & B infect humans predominantly causing gastrointestinal symptoms. Transmission can be via contaminated food and/or water. There have been clusters of Giardia cases within Scotland in the past two years of unknown origin. This study characterises Giardia assemblages and determines their influence on clinical outcome to gain a fuller understanding of the pathogenicity of Giardia and to identify public health issues. Scottish stool samples which are either microscopy positive for Giardia cysts or microscopy negative but deemed to be at “high risk” of giardiasis are included in this on-going study (Oct 2011 – Sept 2012). DNA is extracted from anonymised, consented samples using the QIAamp DNA Stool Mini Kit. DNA is subjected to a semi-nested PCR assay targeting the beta-Giardin gene. PCR positive samples are sequenced (Applied Biosystems3500XL) to identify assemblage and sub-assemblages & this data will be supported by PCR-RFLP analysis. To date, patient consent from 19 individuals has been received. The median age is 38 with an 11:8 male to female ratio. Previous medical histories include Irritable Bowel Syndrome or Inflammatory Bowel Disease (n=3). The most common clinical symptom is chronic diarrhoea (n=17) followed by abdominal pain (n=7), tiredness (n=6), intermittent diarrhoea (n=6), weight loss (n=5) and nausea (n=4). Foreign travel is indicated in 17 cases preceding the onset of symptoms (Europe n=6; Africa n=5; Asia n=2). One traveller visited 3 continents (Asia, Europe and Africa). Recreational water contact is implicated in 5 cases. Of the 19 cases examined, 9 were microscopy positive for Giardia cysts which correlated with PCR positivity. In addition, 3 samples were also shown to be positive by PCR but not by microscopy. Assemblage analysis has been performed on 7 of PCR positive samples; 4 Assemblage A, 2 Assemblage B and 1 mixed (i.e. A and B). 90% of the submitted cases have a pre-travel history to destinations out-with the UK where diarrhoea is the predominant symptom. This supports the requirement for good pre-travel advice to ensure travellers are aware of the known risk factors. PCR appears more sensitive at detecting Giardia from stools and there are a variety of assemblages within the Scottish population. Correlations between clinical symptoms and specific assemblages will be assessed over the duration of this study with the increase in sample numbers.