Summary

A case-control study was conducted in the North West of England and Wales to investigate the aetiology of sporadic Cryptosporidiosis. The study examined the risk factors for sporadic cases of Cryptosporidium as a whole, but cases were also allocated with genotype data to enable separate investigations of genotype 1 (human) and 2 (cattle) infections.

427 cases and 427 controls completed a postal questionnaire giving details about their recreational activities, contact with infected people, contact with animals and consumption of food and water in the two weeks prior to becoming ill or receiving the questionnaire. It was possible to allocate genotypes to 191 (45%) of cases of which 115 were genotype 1 and 76 genotype 2. For each dependent variable two models were run. In the first model only positively associated risk factors were included (pos model) and for the second model both positively and negatively associated risk factors (pos-neg model) were included.

For cases as a whole, the main significant risk factors were broadly similar to those expected in an outbreak investigation. Three variables were strongly associated (p<0.01) with illness in both final models: travel outside the UK, contact with another person with diarrhoea and touching cattle. In the pos-neg model eating ice cream and eating raw vegetables were both strongly negatively associated with illness. Several other positively associated variables achieved varying degrees of significance in one model only: never washing fruit or vegetables before consumption, having a medical condition affecting immunity were also strongly associated with illness, the number of times swum in a toddler pool, age, toileting contact with a child under 5 and number of glasses of unboiled tap water drank at home. Eating tomatoes were negatively associated with illness at the p< 0.05 level.

For genotype 1 infections, the strongly significant risk factors were travel abroad, and changing nappies of children under 5, though contact with an infected person was also significant in the positive only model. For genotype 2 infections, the only strongly significant risk factor was contact with farm animals, though eating raw vegetables and tomatoes were both strongly negatively associated with risk of illness.
Conclusions of the study note that the epidemiology of type 1 and 2 infections appear to be different. Epidemiological studies that combine the two pathogens therefore risk being misleading.

Although the number of glasses of mains drinking water drunk each day achieved significance in one model, no other marker of water consumption did in any model and so these results do not support the suggestion that consumption of mains drinking water as an important risk factor for sporadic cryptosporidiosis. It is possible for a variable to be significant in a model purely by chance.