DOES FELINE ROTAVIRUS CONTRIBUTE TO THE ECOLOGY OF HUMAN ROTAVIRUS?

- Rotaviruses are associated with acute gastroenteritis in people and animals.
- A high degree of genetic homology has been reported for certain feline and human strains.[1-6]
- Infection in cats is poorly understood and clinical signs are inconsistent.[7-10]
- The close association between pet cats and people may have important epidemiological and ecological consequences.
- Rescue catteries provide a valuable population to study the diversity and evolution of rotavirus because
- Stress associated with relinquishment and rehoming affect shedding
- Transmission opportunities change between individuals and large populations

AIMS

1. TO DETERMINE THE PREVALENCE OF ROTAVIRUS EXCRETION IN UK RESCUE CATS
2. TO CHARACTERISE CIRCULATING STRAINS OF FELINE ROTAVIRUS

HOW WERE SAMPLES COLLECTED?

- Cat population
  - 25 Cats Protection Adoption Centres from across the UK (Figure 2)
  - All kittens and a random sample of adult cats
- Faecal collection periods to account for change in demographics (Figure 2)
- Faecal samples
  - 619 samples from 12 centres, collected February-March 2012 (winter) from litter trays
  - Pen as the sampling unit
  - Faecal consistency assessed using a six point scoring system[11]
  - Sample size allowed 95% probability of detecting faecal shedding in one pen if the prevalence of infection was 2%, test specificity 95% and test specificity 100%
  - Samples were kept at 4°C until storage at -80°C

FELINE ROTAVIRUS HAS LOW PREVALENCE

- The prevalence was 0.97% (95% CI 0.4-2.1%)
- Rotavirus was detected in 4 of the 12 centres; a centre prevalence of 33.3% (95%CI 9.9-65.1)
- The prevalence of rotavirus within centres varied from 0 – 3.33% (95% CI 9.9-65.1)
- 6 rotavirus positive samples were identified; all were from adult cats; only one cat had diarrhoea (Table 1)
- The two rotaviruses genotyped were both Group A, G3P[9], from the same adoption centre.
  - Both G3 & P[9] types are epidemiologically relevant for cats and people
- The majority of cat faeces (60%) were normal consistency (grade 5) (95% CI 55.8-64.0)
- 9.6% cats had diarrhoea (grade 3) (95% CI 7.3-12.3)
- 10% cats were constipated (grade 6) (95% CI 7.6-12.7)

CONCLUSIONS AND FUTURE WORK

1. Feline rotavirus has low prevalence over the winter months in UK shelter cats. Why?
   - The small proportion of kittens in the population?
   - Good hygiene?
   - Feline behaviour as a method of disease control, as queens eat their kittens’ faeces until five weeks of age?
2. Analysis for the summer faecal collection (high proportion of kittens) is currently underway
3. G3P[9] has been identified; further genotyping and whole genome sequencing will clarify any relationship with human strains

REFERENCES


Table 1: Molecular results for rotavirus positive samples