Diarrhoea in dogs: Does antibiotic treatment help?

Antibiotic prescription at first presentation of diarrhoea in dogs causes no significant difference in clinical resolution. RVC VetCompass https://www.rvc.ac.uk/vetcompass carries out welfare research based on anonymised clinical information shared from over 30% of UK veterinary practices. We are very grateful to the owners and veterinary professionals who contribute to VetCompass research.

Click to read the full study

Diarrhoea is a common condition in dogs, causing discomfort for affected dogs and stress for owners. Historically, antibiotics were commonly prescribed for diarrhoea in dogs, even in the absence of a known bacterial cause. Despite this, evidence on the value of antibiotics for uncomplicated diarrhoea has been very sparse. Overuse of antibiotics can exacerbate antibiotic resistance, which is considered one of the most serious and treatment-health-related problems worldwide.

This study included dogs under first opinion veterinary care in the UK during 2019 within the VetCompass database. The aim was to assess whether antibiotic treatment for diarrhoea in dogs causes improved clinical resolution compared to no antibiotic treatment.

Total number of dogs in the study: 2,250,741
Number of dogs with diarrhoea randomly sampled for inclusion in the study: 894

Clinical trials (namely pseudorandom controlled trials) are considered "gold standard" for estimating causal treatment effects, but are not always feasible or ethical. Therefore, this study used causal inference to estimate real-world causal effects from veterinary electronic clinical records.

Causal inference from large databases ("Big Data") can be viewed as an attempt to emulate (i.e. replicate) a randomised controlled trial - the target trial - to answer the question of interest.

Diarrhoea Target Trial Emulation - key steps:

- Target trial: Antibiotic treatment
- Engagement of 355 dogs prescribed antibiotics
- Follow-up to 30 days

Clinical Resolution (no revisit for ongoing diarrhoea within 30 days)

Target trial:
Antibiotic treatment
88.3%

Clinical resolution (defined as no revisit with ongoing diarrhoea within 30 days)

The novel target trial emulation analysis balanced the data variables between the treatment groups.

Results

Target trial:
Antibiotic treatment
355 dogs prescribed antibiotics

Clinical Resolution (no revisit for ongoing diarrhoea within 30 days)

88.3%

Veterinary care for uncomplicated diarrhoea without antibiotic was equally as effective as care with antibiotics, with the majority of dogs requiring only one veterinary visit either way.

Conclusions

The findings support a strong recommendation to avoid the use of antibiotics for uncomplicated diarrhoea in dogs.