



Survival analysis of 219 dogs with hyperadrenocorticism attending primary care practice in England

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Introduction

Canine hyperadrenocorticism is an endocrine disease routinely encountered by vets in primary care practice, with an estimated prevalence of 0.28 per cent. The disease is generally associated with old age and is most commonly due to a functional pituitary tumour, although in approximately 15 per cent of cases an adrenal tumour causes the excessive circulatory glucocorticoids that ultimately produce the classical clinical signs in affected dogs.

A good understanding of the survival characteristics of dogs with hyperadrenocorticism would aid vets' clinical decision making. However, there are few studies evaluating survival beyond diagnosis in these dogs. This study aimed to address the knowledge gap by assessing the survival characteristics of dogs diagnosed with hyperadrenocorticism in primary care practice in England.

Approach

The electronic medical records of dogs diagnosed with hyperadrenocorticism at primary care practices in England between

KEY FINDINGS

- The median survival time from initial hyperadrenocorticism diagnosis was 510 days.
- Older age at diagnosis, a greater bodyweight and no alteration to the starting dose of trilostane were identified as risk factors for death in dogs diagnosed with hyperadrenocorticism.

1 January 2009 and 31 December 2013 were evaluated. Data extracted included signalment, bodyweight, age at diagnosis, laboratory results, prescribed treatments and outcome (as of 4 April 2018).

Kaplan-Meier plots were then used to examine cumulative survival, and Cox proportional hazard regression modelling was used to identify factors associated with death in this population of dogs.

Results

A total of 219 dogs were included in the analysis. Of these, 179 (81.7 per cent) died during the study period, with a median survival time from initial diagnosis of 510 days (95 per cent confidence interval [CI] 412–618 days). Trilostane was used in 94.1 per cent of cases, and differentiation between pituitary- and adrenal-dependent disease was made in 20.1 per cent of cases.

In the multivariable analysis, dogs weighing 15 kg or more (hazard ratio [HR] 1.51, 95 per cent CI 1.06–2.15, $P=0.023$) and those diagnosed at 13 years of age or older (HR 3.74, 95 per cent CI 2.29–6.09, $P<0.001$) had an increased risk of death. Dogs that had their initial trilostane dose increased had a more favourable

prognosis than those that did not (HR 0.49, 95 per cent CI 0.32–0.76, $P=0.015$).

Interpretation

The findings of this study show that the prognosis after being diagnosed with hyperadrenocorticism is fair for many dogs. Unsurprisingly, older age at diagnosis was associated with poorer survival, with older dogs having a naturally shorter expected onward survival than younger dogs. The poorer survival observed in dogs weighing 15 kg or more could potentially be due to the shorter life expectancy in larger breed dogs. It may also be because larger breed dogs are thought to be at increased risk of adrenal-dependant hyperadrenocorticism, which in itself has been associated with reduced survival times.

However, the observation that the prognosis of dogs that had their initial trilostane dose increased was more favourable than those with no dose change needs to be interpreted cautiously, as this effect could be due to reverse causality (ie, cases that live longer may be more likely to have a dose change). There is also potential selection bias in this study. Confirming a diagnosis of hyperadrenocorticism requires uptake of diagnostic tests and an initial financial outlay by an owner. Therefore, there will be dogs with hyperadrenocorticism that were left undiagnosed and hence were not included in this study.

Significance of findings

The findings of this study provide primary care practitioners with benchmark data on the diagnosis, management and prognosis of canine hyperadrenocorticism. These data will help inform clinical decision making in such cases.

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This is a summary of a paper that is published in full at veterinaryrecord.bmj.com

Published Online First 20 September 2019

Veterinary Record (2020) 186, 348

Cite as doi: 10.1136/vr.105159