A Retrospective Review of Canine Infective Endocarditis at a UK Referral Hospital – What Can We Learn from This?

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Introduction

- Infective endocarditis is caused by a bacterial infection of the valvular endothelium.
- Current reviews of the disease are based on populations from US veterinary hospitals and show the following:
 - A low prevalence varying between 0.04% and 0.13%.
 - The mitral and aortic valves are commonly infected by *Streptococcus* spp and *Bartonella* spp respectively.
 - A male predisposition.
 - No clear breed predilection.
- Survival rate was 44% in a study ¹.
- A median survival of just 3 days was shown in dogs with aortic valve endocarditis and of 476 days in dogs with mitral valve endocarditis ².

Results

- The database yielded 41 records.
- 14 females and 27 males were included in the study. The mean age was 7.6 (± 2.46) years old. Middle age to older large breed male dogs were predisposed.
- Clinical signs were non-specific (see graph 1).
- A wide variety of organisms were implicated but no dogs were diagnosed with *Bartonella* spp. endocarditis (graph 2).
- The mitral valve (n=29) was statistically more likely to be infected than the aortic (n=10) and tricuspid (n=3) valves, while the aortic valve was significantly more likely to be infected than the tricuspid valve (see graph 2).
- There was no significant association between organism and valve involvement.
- The average hospitalization time was 9.7 days, and the most frequent antibiotic therapy prescribed was initially amoxycillin-clavulanate acid and enrofloxacin IV.
- The survival rate was 59%. There was no significant difference between the survival curves of the dogs with different valve infections (see graph 3).
- The median survival time was 294 days for those that survived to discharge.

Graph 1: Common clinical signs.

Conclusions

- The lack of a heart murmur in a pyrexial patient should not rule out infective endocarditis as a differential diagnosis.
- The outcome was better in this UK population of dogs compared to previous US studies.
- This difference may be linked to the lack of *Bartonella* spp in our patients.
- Further studies in other referral hospitals may be useful to validate these findings.

Objectives

- The aim of this study was to review the causative organisms, clinical features and outcomes of canine infective endocarditis in a UK referral hospital.

Materials & Methods

- Records from the Queen Mother Hospital for Animals (QMHA) were searched for dogs with infective endocarditis between January 2009 and December 2019. Dogs were included using Duke's modified criteria.
- The following variables were evaluated in relation to infecting organism and valve affected: age, sex, breed, clinical signs, troponin levels, antibiotic treatment, comorbidities, hospitalization length and survival time.
- A Kruskal-Wallis test was used to test whether there was a difference in the frequency of endocarditis between valves. A Chi-square test was used to analyse the relationship between organism and valve infection. A log-rank test was used to compare the survival curves between dogs with different valve infections.

Graph 2: Summary of the infecting organisms and cardiac valves involved.

Graph 3: Survival plot of dogs that were discharged from the QMHA following infection.

References

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