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Long-term outcome in dogs with chronic enteropathies: 203 cases

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AMONG the causes for chronic enteropathies (CE) in dogs, food-responsive diarrhoea (FRD), antibiotic-responsive diarrhoea (ARD) and steroid-responsive disease (SRD) are common (Allenspach and others 2007, Simpson and Jergens 2011). These disorders are diagnosed retrospectively by their response to treatment. Prevalence data regarding how many dogs can be categorised into each group are scarce as are clinical data describing the characteristics of a typical patient in each of these groups (Craven and others 2004, Muenster and others 2006, Allenspach and others 2007). Furthermore, only a few studies to date have investigated more long-term outcome in the different treatment categories (Allenspach and others 2006, 2007). The goal of this retrospective study was, therefore, to compare severity of clinical signs, age at diagnosis, serum albumin concentrations, serum cobalamin and folate concentrations as well as outcome at various time points after diagnosis between a group of dogs treated with dietary management alone (FRD), diet and antimicrobials (ARD) or diet and immunosuppressive agents (SRD) in a larger cohort of dogs.

The electronic medical records at the Royal Veterinary College, London, were searched for dogs diagnosed with CE between 2005 and 2012. The diagnosis was confirmed based on exclusion of any other causes for chronic diarrhoea, and endoscopy followed by histopathological findings of intestinal mucosal biopsies confirming lymphoplasmacytic, eosinophilic or mixed inflammation. In addition, at the time of diagnosis, all dogs had to have a clinical scoring index (Canine Chronic Enteropathy Clinical Activity Index (CCECAI); Allenspach and others 2007) recorded by the attending clinician in order to be included into the study.

In total, 203 dogs were included in the study. FRD was defined as dogs that responded to elimination diet alone within two weeks after initiating therapy and that had been kept on a strict dietary regimen for 12 weeks after diagnosis. All FRD dogs were then switched back to the diet they had been previously consuming. Dogs with ARD were defined as having failed to respond to a novel antigen of hydrolysed dietary trial before referral and responded to metronidazole within two weeks after initiation of therapy. Dogs with SRD were defined as those that had an unsuccessful dietary and antimicrobial trial with either metronidazole or tylosin before referral, and required immunosuppressive therapy to control their clinical signs, with a number of combinations of prednisolone, cyclosporine and azathioprine treatment being included in this group. At the time of diagnosis, CCECAI, age, serum albumin, folate and cobalamin concentrations were recorded. Outcome data were defined as no improvement or only slight improvement, or moderate to marked improvement, and were extracted from the medical record database, when available, at 2–4 weeks, 4–8 weeks, 8–12 weeks and at 12 weeks to 6 months after diagnosis. Outcome data at 6–12 months were collected by telephone interviews to owners and referring veterinarians and were defined as improved or not improved compared with at time of diagnosis. Data were evaluated for normal distribution, and statistical analysis between groups was performed using a Kruskal–Wallis followed by Dunn's post hoc test for numerical data or χ^2 test for categorical data, respectively.

The FRD group consisted of 131 dogs (64%), whereas the ARD and SRD groups consisted of 33 (16.2%) and 39 dogs (19.2%), respectively. Diets prescribed in the FRD dogs included an elimination diet in 73 cases (55%), a hydrolysed diet in 58 cases (44%) and a home-cooked diet in 2 cases (1%). Median age at diagnosis was significantly different between the FRD

and SRD dogs, and between the ARD and SRD dogs (FRD median 3 years, range 0–12, ARD median 2, range 0–11, SRD median 6, range 1–13, $P \leq 0.001$). Serum albumin concentration was significantly different between the FRD and SRD groups (mean FRD $3.2 \pm \text{SD } 5.8$; SRD $2.6 \pm \text{SD } 9.0$; $P \leq 0.001$; reference range 2.8–3.9 g/dl); however, serum folate and cobalamin concentrations were not different between groups (cobalamin: FRD median 360 (range 146–1127), ARD median 402 (range 150–1200), SRD median 245 (range 156–1200), normal value >200 ng/l, $P=0.17$; folate: FRD: median 12.05 (range 2.5–24), ARD median 12.4 (range 2.1–20.2), SRD median 13.6 (range 3.4–23.3), $P=0.31$, reference range 6.5–11.5 ng/ml). CCECAI at diagnosis was significantly different between the FRD and ARD groups, and between the FRD and SRD groups (median FRD 6, range 2–12; median ARD 8, range 0–14; median SRD 9, range 5–14, $P \leq 0.001$). Outcome was significantly better for FRD versus ARD and for FRD v SRD at 2–4 weeks after discharge from the hospital ($P < 0.001$ and $P=0.002$). At 4–8 weeks after discharge, outcome was significantly better in FRD versus ARD ($P < 0.001$), and at six months to one year, outcome was also significantly better for FRD versus ARD and for FRD versus SRD ($P < 0.001$ and $P=0.002$). There was no statistically significant difference in outcome between dogs that received an elimination diet or a hydrolysed diet ($P=0.7$).

The data presented in this study confirm previous findings that FRD dogs comprise approximately 2/3 of dogs presenting with CE in a secondary to tertiary referral population (Craven and others 2004, Allenspach and others 2007). ARD dogs were the youngest, followed by FRD and SRD dogs, which concurs with previous studies (Muenster and others 2006, Allenspach and others 2007). Clinical severity at the time of diagnosis was significantly different between the groups, again with FRD having the lowest clinical scores. This is consistent with some previous reports (Muenster and others 2006), but not with others

(Allenspach and others 2007). Mean serum albumin concentrations were significantly decreased in SRD compared with FRD, which could be due to the fact that more severely affected animals are more prone to develop a degree of protein-losing enteropathy or chronic malnutrition. Outcome in FRD dogs was very good in the first year after diagnosis in this cohort of dogs, which confirms previous findings that a response to elimination diet or hydrolysed diet within two weeks should prompt a strict dietary regimen for at least 12 weeks after diagnosis (Allenspach and others 2007). However, current treatment for ARD and SRD seems unsatisfactory and studies need to be designed to look at long-term response in dogs with CE to get a better understanding on how to treat these dogs.

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