Dietary Patterns of Dogs with Cardiac Disease

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EXPANDED ABSTRACT

KEY WORDS: • dog • heart disease • dilated cardiomyopathy • chronic valvular disease • sodium

Nutrition can play an important role in the management of patients with cardiac disease. Dogs with cardiac disease often have nutritional alterations that can either be preexisting or secondary to the disease or its treatment. These can include anorexia; cardiac cachexia; altered sodium, chloride and potassium excretion; and nutrient deficiencies (1–5). Anorexia, for example, has been reported to occur in up to 84% of dogs with congestive heart failure (CHF) (1). In addition, anorexia has been shown to be a contributing factor in the decision of euthanasia in 68% of dogs with CHF (1). The prevalence of anorexia in a more diverse population of dogs with cardiac disease has not been reported.

A variety of nutritional modifications have been proposed to slow progression of cardiac disease and to improve quality of life. These include sodium restriction, caloric supplementation and administration of nutritional supplements [e.g., taurine, carnitine, coenzyme Q10, (n-3) polyunsaturated fatty acids (3–9)]. To prove benefits of these and other forms of nutritional modulation, intervention studies are needed. Knowledge of the usual dietary patterns of dogs with cardiac disease is required to conduct these studies. For example, dietary patterns may change when dogs are initially diagnosed with cardiac disease or may change with increasing severity of disease. In addition, dogs with cardiac disease are typically older and may have concurrent diseases that could also require dietary modifications. Finally, knowledge of the extent of use of treats and nutritional supplements also would be important in designing nutritional studies and in dietary modification.

The purpose of this study was to determine the prevalence of anorexia and the dietary patterns of dogs with cardiac disease.

MATERIALS AND METHODS

Dogs that had been diagnosed with either dilated cardiomyopathy (DCM) or chronic valvular disease (CVD) by echocardiography between 1999 and 2001 at the Tufts University Foster Hospital for Small Animals were included in the study. To avoid new, unstable cases, the diagnosis had to be established by a board-certified veterinary cardiologist at least 1 mo before participation in the study. All dogs were identified from the cardiology database at the Foster Hospital for Small Animals. Owners of these dogs were contacted by telephone and were given a standardized questionnaire that included questions on the dogs’ concurrent diseases, medication use, anorexia and diet history. All food intake over the last 24 h also was recorded.

Chi-square analysis was used to determine differences in categorical variables between dogs with DCM and CVD and also between symptomatic and asymptomatic dogs. Continuous variables were compared using independent t-tests. All statistical analysis was performed using a commercial statistical software package (Systat 9.01; SPSS, Chicago, IL). A value of P < 0.05 was considered statistically significant.

RESULTS

Eighty-five owners of dogs with cardiac disease were contacted. Seventeen dogs had died, two owners declined to participate and one owner provided conflicting answers; thus, 65 dogs with cardiac disease were included in the study. Of the 65 dogs, 52 had CVD and 13 had DCM. The mean age was 11.1 ± 2.9 y. Dogs with CVD (11.8 ± 2.4 y) were significantly older than dogs with DCM (8.2 ± 2.7; P < 0.001). The dogs were predominantly male (n = 38; 33 neutered) with 27 female dogs (26 neutered). The most common breed represented was the Poodle (n = 10: Toy, n = 4; Miniature, n = 5; Standard, n = 1). Other common breeds included Cocker Spaniels (n = 5), mixed-breed dogs (n = 5), Chihuahuas (n = 3), Keeshonds (n = 3), Yorkshire Terriers (n = 3), Doberman Pinschers (n = 3), Basset Hounds (n = 3) and Cavalier King Charles Spaniels (n = 3). Twenty-three other breeds were represented. Median body weight was 10.8 kg.

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4 Abbreviations used: CVD, chronic valvular disease; CHF, congestive heart failure; DCM, dilated cardiomyopathy.
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The majority of dogs included in the study were asymptomatic for the cardiac disease (n = 43) but 22 dogs were symptomatic (i.e., had a prior episode of CHF). The median length of time since initial diagnosis of the cardiac disease was 17 mo (range, 2–111 mo). Fifty dogs were receiving cardiac medications. The most commonly used medications included angiotensin converting enzyme inhibitors (n = 48), furosemide (n = 21), beta blockers (n = 15), digoxin (n = 9) and hydrochlorothiazide/spironolactone (n = 6). Many dogs (n = 43; 66%) had concurrent diseases including cancer, seizures, hypertension, urolithiasis, periodontal disease, osteoarthritis, collapsing trachea, chronic renal failure and hyperadrenocorticism. Some dogs had multiple concurrent disease processes.

Twenty owners changed their dogs’ diets when the cardiac disease was first diagnosed, often based on the attending veterinarian’s recommendation. Another 14 owners changed the diets later during the course of disease. Anorexia was present, either currently or at some point in the past, in 25 dogs (39%). Anorexia was significantly more likely in symptomatic dogs than in asymptomatic dogs (P < 0.03). Diets eaten were varied. Dogs ate commercial dry dog food only (n = 24), commercial canned food only (n = 13), or both (n = 21). Seven dogs consumed homemade diets exclusively (none formulated by a veterinary nutritionist). There was no difference in diet type between dogs with DCM and CVD but there was a trend for symptomatic dogs to be more likely to eat canned food alone compared to asymptomatic dogs (P = 0.08). Seventeen dogs were eating therapeutic diets, although only one was a diet designed specifically for cardiac disease. Sixty of the 65 dogs (92%) received treats. These included commercial dog treats (n = 44) and human food (n = 43). Nutritional supplements were given to 21 dogs. Nutritional supplementation was more common in the DCM group than in the CVD group (P = 0.002). The most commonly administered nutritional supplements included multivitamin supplements, coenzyme Q10, L-carnitine, taurine, fish oil and vitamin E.

Of the 58 owners that administered either medications or nutritional supplements, 36 (62%) used human or pet foods for pill administration. Many of these foods were high sodium foods such as lunch meats or cheese. Although further studies are needed to determine whether this information collected in the current study is applicable to other patient populations, this information may be useful in determining baseline information for intervention studies and where nutritional modifications could be beneficial for dogs with cardiac disease.

LITERATURE CITED