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ORIGINAL RESEARCH

Cats with IRIS stage 1 and 2 chronic kidney disease maintain body weight and lean muscle mass when fed food having increased caloric density, and enhanced concentrations of carnitine and essential amino acids

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Introduction

Feeding a renal diet to cats with IRIS stage 2 chronic kidney disease (CKD) or higher is currently considered the standard of care, with strong evidence supporting this recommendation. The purpose of this study was to provide prospective data on the dietary management of cats with IRIS stage 1 and 2 CKD using commercially available renal-support foods. The study aimed to determine whether a therapeutic renal food with controlled protein and phosphorus, increased caloric density, an enhanced essential amino acid profile, added L-carnitine, fish oil, antioxidants and enhanced palatability could help cats maintain bodyweight and muscle mass over a six-month period, compared with cats fed a control food having a similar protein content but different composition.

The hypothesis of the study was that cats consuming the test food would consume more calories, maintain bodyweight and lean body mass (LBM) and show a stable or improved serum renal biomarker (creatinine and symmetric dimethylarginine concentrations) status across time, compared with cats fed control food.

KEY FINDINGS

- Cats with IRIS stage 1 and 2 chronic kidney disease (CKD) consuming test food had increased caloric and essential amino acid intake, increased body weight, stable biomarkers of kidney function and maintained lean body mass (LBM) compared with cats consuming control food.
- Threonine intake was positively associated with a change in LBM.
- These data suggest that renal diets with high concentrations of carnitine and essential amino acids, and of higher energy density, are critical for cats with IRIS stage 1 and 2 CKD to maintain LBM.

Approach

A prospective, randomised, six-month feeding trial was performed in 28 adult cats with IRIS stage 1 and 2 CKD. All cats were assigned to either a control food (Renal Support A Feline, dry; Royal Canin) or a test food (Prescription Diet k/d® Feline with chicken, dry; Hill's). Food intake was recorded daily, bodyweight was recorded weekly and serum, urine, dual-energy x-ray absorptiometry and body condition assessments were performed at 0, one, three and six months.

Results

Twenty cats (nine controls and 11 from the test group) completed the study according to protocol. Cats consuming the control food had a significant loss of bodyweight (mean= 13 per cent, P<0.0001) and LBM (mean= 11.1 per cent, P<0.0001) over the six month feeding period, whereas cats consuming the test food had a significant increase in bodyweight (mean= 5.8 per cent, P=0.003) and no change in LBM (P=0.42).

Cats consumed 23 per cent more calories (P=0.05) when fed the test food (mean= 207.1 kcal/day) compared with cats fed the control food (mean= 168.0 kcal/day). Serum creatinine increased at a faster rate (P=0.0004) in cats consuming the control food compared with cats consuming the test food. Threonine intake was positively associated with a change in LBM (P<0.001).

Interpretation

The data suggest that renal diets with high concentrations of essential amino acids are critical for cats with IRIS stage 1 and 2 CKD to maintain bodyweight, body condition and LBM, as these cats may have decreased appetite and fluctuations in daily food intake. Future studies are needed to confirm these health benefits in client-owned cats.

Significance of findings

As in dogs, these results support the recommendation that feeding a renal-support diet to cats with IRIS stage 1 and 2 CKD should be considered the standard of care.

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