

EFFECTS OF MULTIMODAL ENVIRONMENTAL MODIFICATION IN CRYSTAL-RELATED FELINE LOWER URINARY TRACT DISEASES

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This study aimed to investigate the effect of multimodal environmental modification (MEMO) in cats with recurrence of lower urinary tract signs (LUTS). Feline lower urinary tract disease (FLUTD) includes feline interstitial cystitis, cystolithiasis, urethral obstruction and urethral plugs. Cats with FLUTD present with signs of inappropriate urination, dysuria, hematuria, pollakiuria, stranguria, urethral obstruction (Gerber, 2005). Crystal development occurs in 15-45% of FLUTD cases. More than 90% of uroliths from cats are either struvite or calcium oxalate crystals (Bartges and Kirk, 2010). Treatment of FLUTD includes medical treatment, dietary management and multimodal environmental modification (Buffington, 2006; Landsberg 2017).

Twenty client-owned indoor-housed cats (aged 2-6 year, tabby cat, 4 neutered female, 16 castrated male) with recurrent lower urinary tract signs (3 times a year) were included in this study. Diagnosis of FLUTD was made on the basis of the cat's clinical signs, results of laboratory parameters and ultrasound examination. Cats were divided into two groups: Group 1 received cefovecin (8 mg/kg sc, only one time), meloxicam (0,1 mg/kg q24h, 3 days) and dry food with L-tryptophan and milk protein hydrolysate to dissolve struvite stones. Group 2 recieved cefovecin (8 mg/kg sc, only one time), meloxicam (0,1 mg/kg q24h, 3 days), dry food with L-tryptophan and milk protein hydrolysate to dissolve struvite stones and multimodal environmental modification. Clinical (generally demenanour, appetite, size of bladder, abdominal pain on palpation) and urinary parameters (hematuria, proteinuria, erythrocytes/hpf, leucocytes/hpf, macroscopic hematuria, urine loudy/flakes, struvite crystals) were scorred on days 0, 3, 7 and 14. Cases were followed for 6 months by client contact to determine the effect of MEMO on FLUTD.

Scores of clinical parameters were significantly different ($p<0.05$) between groups 2 and 1 on the third and seventh days and scores of urinary parameters were significantly different ($p<0.05$) between groups on the seventh day. Clients who were contacted after 6 months reported that they did not see any clinical signs of urinary tract diseases.



Cats' Attachment scores were significantly lower than that of dogs ($t=-9.92$; $P < 0.01$). Dogs' Attachment ($r_s = -0.527$, $P < 0.01$) and Anxiety ($r_s = -0.531$, $P < 0.01$) scores showed negative correlation with Acceptance. In cats, Attachment and Acceptance scores showed positive correlation ($r_s = 0.672$, $P < 0.001$). Results refer to a not distinctive, higher or lower sociability towards both human partners in cats, and to a specific preference of the owner in case of the dogs.

These findings have major implications in collecting reliable and repeatable data on cat behaviours and in ensuring an optimal welfare, relevant not only in laboratory, but also in routine setting (e.g. veterinarian).

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