

Recent advances in controlling feline urine spraying

By Meagan Thomas

Introduction

Cats are often thought to be the cleanest of companion animals so most owners find it distressing and unacceptable when their cat urinates inappropriately on the carpet or sprays the furniture. Elimination problems are the most common behavioural problem reported in cats, accounting for 40-75% of behavioural problems cats (Pryor et al., 2001; Seksel, 2000). While inappropriate elimination is not a dangerous problem in a cat, like aggression it can be life-threatening, as this socially unacceptable behaviour for the owner may mean euthanasia for the cat (Hart, 1996; Seksel and Lindeman, 1998; Seksel, 2000, 2001). This review aims to discuss the behaviour and welfare problems associated with elimination, distinguish between urine spraying and inappropriate urination, and look at three recent therapies aimed at treating urine spraying.

Understanding the problem and distinguishing between urine spraying and inappropriate urination.

It is important to differentiate between urine marking and inappropriate urination, as inappropriate urination can often be treated by environmental manipulation. Spraying may be less likely to respond to environmental manipulation or behaviour modification alone (Hart, 1996; Pryor et al., 2001; Seksel and Lindeman, 1998; Seksel, 2000, 2001).

	Spraying	Inappropriate urination
Position	stand, squat	usually squat
Amount of urine	small quantity	large quantity
Location of urine	usually vertical surfaces	horizontal surfaces
Scratching after	rarely	often
Reason	innate behaviour, territorial, sexual, agonistic, form of communication	elimination of waste

Predisposing factors, which may compromise the welfare of the cat, including disease, hormonal and anxiety-related problems should be considered as possible contributors to urine spraying. For example, the sight, sound or smell of another cat, moving house or simply re-arranging furniture are all possible contributors (Hart, 1996; Overall, 1997; Pryor et al., 2001; Seksel, 2000, 2001).

Neutering is often the best option to solve urine spraying (Seksel, 2000, 2001). Spraying is a marking behaviour and, in 87% of entire male cats, castration was reported to solve the problem (Hart, 1996; Seksel 2000). However, urine spraying also occurs in castrated males and spayed females, so other treatment options must be considered.

Clomipramine use in urine spraying cats

Many stimuli that are causing the cat to spray cannot be removed, and the cat must learn to deal with them. Pharmacological treatments can help achieve this by reducing the anxiety level of the cat. In cats, clomipramine (that combines the properties of a selective serotonin re-uptake inhibitor and a tricyclic anti-depressant) has been recommended to treat anxiety-related disorders, such as spraying, and up to 90% success has been reported (Landsberg, 2001; Maddison et al., 2002; Novartis, 1998). Seksel and Lindeman (1998) and Seksel (2001) showed that behaviour modification used in conjunction with clomipramine was effective in

controlling urine spraying, overgrooming and inappropriate vocalisation in 10 cats for a period of 6 months. These behavioural modifications, aimed at reducing the external stimuli provoking the unwanted behaviour, are often difficult to achieve but may involve:

- decreasing the number of cats in a household
- decreasing access to external sight, sound and smell stimuli such as neighbourhood cats
- varying the proportion of time spent indoors or outdoors
- changing the way the cat perceives the areas it sprays by making them feeding or play areas instead (Seksel, 2001).

This study is limited by the small number of cats in the trial and the difficulty in distinguishing the proportion of success attributed to the medication versus that attributed to the behaviour modification techniques.

Effects of a selective serotonin reuptake inhibitor on urine spraying

Another pharmacological alternative is the use of selective serotonin reuptake inhibitors (SSRIs) such as Fluoxetine or Prozac. These lack the anti-cholinergic and cardiovascular side effects of TCAs, resulting in a much improved safety and tolerance (Maddison et al., 2002). In cats they have been used to treat urine spraying, aggression, and obsessive-compulsive disorders with the anecdotally reported success rate of around 80% (JAVMA, 2002; Seksel, 2000).

Recently, Pryor et al. (2001) conducted a randomised, placebo-controlled clinical trial of fluoxetine in reducing spraying in cats. The trial involved two groups measured for individual baseline urine marking for two weeks prior to commencement of treatment: one with a placebo and one with fluoxetine. After 8 weeks treatment, urine marking did not change significantly with the placebo as expected. However with fluoxetine, the rate of urine marking reduced considerably (Pryor et al., 2001).

This study was limited by significant environmental manipulation, including daily cleaning of urine marks with an enzymatic cleaner, cleaning of litter trays, increasing litter trays in multicat households and reducing stimuli and the opportunity for agonistic interactions with other cats. The effect of this contribution was not measured. Also, the length of the study was too short to fully assess its success since behaviour modification usually involves long-term management.

A novel method for delivering a pheromone especially to control urine spraying

Feliway contains a synthetic analogue of the F3 fraction of feline facial pheromone along with a cat attractant (Maddison et al., 2002; Seksel 2000). It is sprayed on areas where the cat sprays or head butts (i.e. furniture). It is useful in fractious cats as it does not require handling the animal and in multicat households since it does not rely on the treatment of a specific cat (Seksel, 2001).

Mills and Mills (2001) conducted a placebo-controlled trial of 22 cats with spraying problems. Feliway was delivered continuously through an electrically heated "plug-in diffuser". This method of administration is convenient and is likely to result in greater owner compliance and improved success in treatment.

Reduction in urine spraying of between 74-97% was reported without additional behaviour therapy and the relapse rates appear low (Mills and Mills, 2001; Mills and White, 2000). During the trial, no behaviour therapy was given and the owners were asked specifically not to change their routine. This suggests that behaviour therapy may be redundant, however further work is required to evaluate the long-term effects of treatment and assess the proportion of cats that cease spraying in response - only 2 of the 10 cats reached this point during the short 4-week trial.

Conclusion

More comprehensive studies are required to determine the relative merits of behavioural therapies and those that are likely to improve animal welfare and owner compliance. The long-term efficacy of behaviour, drug and concomitant therapies, and how these compare also require further investigation. The use of drugs to treat behaviour problems without a concurrent behaviour modification problem cannot be condoned - drugs should always be considered as an adjunct to behaviour modification therapy, not as replacement.

Bibliography

Hart, B.L. (1996) Behavioural and pharmacologic approaches to problem urination in cats. *Vet Clin North Am (Small Anim Pract)* 26:3, 651-658.

Landsberg, G.M. (2001) Clomipramine - beyond separation anxiety. *J Am Anim Hosp Assoc* 37, 313-318.

Maddison, J. Page, S. and Church, D. (2002) *Small animal clinical pharmacology*. WB Saunders, Philadelphia.

Mills, D.S. Mills, C.B. (2001) Evaluation of a novel method for delivering a synthetic analogue of feline facial pheromone to control urine spraying by cats. *Vet Rec* 149, 197-199.

Mills, D.S. White, J.C. (2000) Long-term follow up of the effect of a pheromone therapy on feline spraying behaviour. *Vet Rec* 147, 746-747.

Novartis. (1998) *Clomicalm animal behaviour resource manual for veterinary clinics*. Novartis Animal Health Australasia Pty Ltd., Wentworthville NSW.

Overall, K.L. (1997) *Feline elimination disorders in Clinical behavioral medicine for small animals*. Mosby, St Louis.

Pryor, P.A. Hart, B.L. Cliff, K.D. Bain, M.J. (2001) Effects of a selective serotonin reuptake inhibitor on urine spraying behavior in cats. *JAVMA* 219:11, 1557-1561.

Seksel, K. (2000) Feline urine spraying in *Recent advances in companion animal behavior*, ed. K.A. Houpt, International Veterinary Information Service (<http://www.ivis.org/>), Ithaca, New York.

Seksel, K. Lindeman M.J. (1998) The use of clomipramine in the treatment of anxiety-related and obsessive-compulsive disorders in cats. *Aust Vet J* 76:5, 317-321.