



Contraceptives in Cats: Comparison Study Between Different Methods in Al-Hilla City

Noha Haider Abd Al-Abbas¹, Mohammed Hamzah Mohsin², Tiba Hayder Salih²

¹Student, College of Veterinary Medicine, Al-Qasim Green University, Babylon 51013, Iraq

²Surgery and Obstetrics Department, College of Veterinary Medicine, Al-Qasim Green University, Babylon 51013, Iraq

Email: nohahaider815@gmail.com

ABSTRACT

Two goals of the contraception in cats this study has focused on: (i) the contraception methods and (ii) the owners' preferred technique. Hence, 18 queen cats, regardless of the age and breed, have been studied over three months to prohibit estrus. The animals were divided into four groups. Cats in Group I (GI) and II (GII) received megestrol acetate (5mg per ~12 days) and medroxyprogesterone acetate (50mg/cat), respectively. Group III (GIII) underwent ovariohysterectomy under general anesthesia while Group IV (GIV) was kept untouched due to the owners' reticence. The study has illustrated that 80% of GI cats responded to treatment with a single exception where the estrous signs appeared after 2 days of drug delivery. Moreover, all GI group animals depicted no side effects. Animals of GII have shown 1:3 ratio of missing and disappearing of estrous signs after 2 days of injection. In GIII, ovariohysterectomy had been done for all cats under general anesthesia and then under vision to prevent complications after the operation. The fourth group did not receive any treatment as requested by the owner. It was concluded that the contraceptive medication and ovariohysterectomy are widely used in Al-Hillah city to prevent mating, with 16% refusing any type of treatment.

Keywords: Queen, Contraceptive, Megestrol acetate, Medroxyprogesterone acetate, ovariohysterectomy

Introduction

Proestrus

Proestrus is the first stage at which queens are attracted to toms but aren't prepared for sex. During this period, ovarian follicles grow more quickly and greater oestradiol is made. Queens often make noise and touch their noses on objects or people. Rubbing generally results in rolling, with many queens extending out and twisting while laying down on their sides, opening and closing their claws at random. Queens can walk in place with their rear legs in a lordosis stance. When cats see a tomcat, they are going to prevent sexual contact and may even attack the male with their claws. Proestrus can last anywhere from 12 hours and three full days. (1).

Oestrus

Oestrus is a time when a female is ready to mate. It usually lasts between four to seven days, although it can last up to 21 days (2-4). During this time, the levels of serum oestradiol increase quite rapidly. Oestradiol makes the labia of the queen's vulva a little swollen and red, but they stay small and covered in hair, so you have to look carefully to see any changes. Vulvar discharge is occasional and not often seen because cats take care of their bodies. When a tom approaches, queens regularly make noise and scream out to him. They crouch down and go into a lordosis position, moving their hind legs in situ. As she shows herself to her lover, the queen's belly and lower back are on the floor, her perineum is raised, and her tail is bowed to the side. During oestrus, this attitude is often generated by stroking the queen's back or dorsal rump (1).

Interestrus

Cats are polyestrous, in which they don't ovulate spontaneously after every oestrus phase. During this time, serum oestradiol levels soon return to normal, and no signs of estrus can be seen. Queens usually return to proestrus in 7 to 21 days, although the time can range from 3 days to 7 weeks (1, 2, 4).

Diestrus

After ovulation, diestrus happens during oestrus. Corpora lutea start to form 24 to 48 hours after ovulation and start to secrete progesterone (1). If queens are not pregnant, the CLs remain for 30 to 50 days (on average 35 days), after which they start to undergo luteolysis. The diestral queens with no signs of estrus for 35 to 100 days (about 45 to 50 days on average) before starting proestrus/estrus again (5,6). This period is behaviorally similar to anestrus or interestrus because there is no breeding activity. Sometimes, towards the end of diestrus, queens will show oestrous conduct as their progesterone levels decrease back to normal (7).

Anestrus

Most free-roaming queens go through anestrus, which is a time of sexual rest, from October to January. They could hiss or hit toms when they try to make sexual attempts.

Contraceptives in felines

1-Progestins

The drugs may be taken by mouth or by injection. The "cat contraceptive pill" is what people call the oral form. Megestrol acetate (MA) is the active ingredient that is used the most. There are, however, two other progestins: proligestone and medroxyprogesterone. The main problems with progestins are the strength and severity of side effects, which depend on the dose, phase of the oestrous cycle, and any pre-existing medical disorders. When animals were given progestins, they may develop mammary tumors, cystic endometrial hyperplasia/pyometra complex, mammary hyperplasia, ovarian cysts, and diabetes mellitus (8). The spaying program was reduced during the COVID-19 pandemic, which made medical treatment, such as MA, a possible alternative (9). If the queen shows signs of oestrus, the recommended dose is 5 mg/cat/ day for three days, followed by a treatment plan administered once a week. In Italy, Romagnoli (8) used a lower dose of MA (0.01–0.03 mg/kg once daily). It should not last longer than two years for progestin medication, and one year is even better. Progestins can stop the ovulatory process in humans by altering how the ovary releases hormones such as estradiol, inhibin, and/or activin. Because of this, the pituitary gland isn't stimulated enough, and follicle-stimulating hormone and luteinizing hormone don't reach their preovulatory peaks (10,11). All progestins given to queens stop the signs of oestrus. There is a wide range of half-lives reported for the many progestins studied in cats, including MPA, chlormadinone acetate, proligestone, levonorgestrel, delmadinone acetate, and altrenogest (14, 15). The impact on MA is short-lived (12,13).

2.Melatonin

Melatonin (N-acetyl-5-methoxytryptamine) is released by the pineal gland when daylight decreases. Melatonin stops the hypothalamus from releasing GnRH in queens (16). Melatonin can be given in pill form, but it has to be given to the cat every day, which makes this form of the drug less useful. Furthner (17) gave the queen melatonin by mouth, but the results weren't particularly impressive, and the queen refused to take the tablet, which was a big problem. However, oestrus was suppressed (around 63 days) from the start of the treatment when melatonin (4 mg tablets per cat per day) was given two hours before lights out (18). In 81.4% (22 out of 27) of the implanted queens, the average length of time that oestrus was suppressed was 103.9 days (56 to 156 days) (19). Furthner (18) says that 79% of the queens their owners had were able to stop oestrus (33 out of 42). The melatonin implant doesn't work right away; some queens may still be in heat up to 10 days after getting it (19, 20).

3. Deslorelin

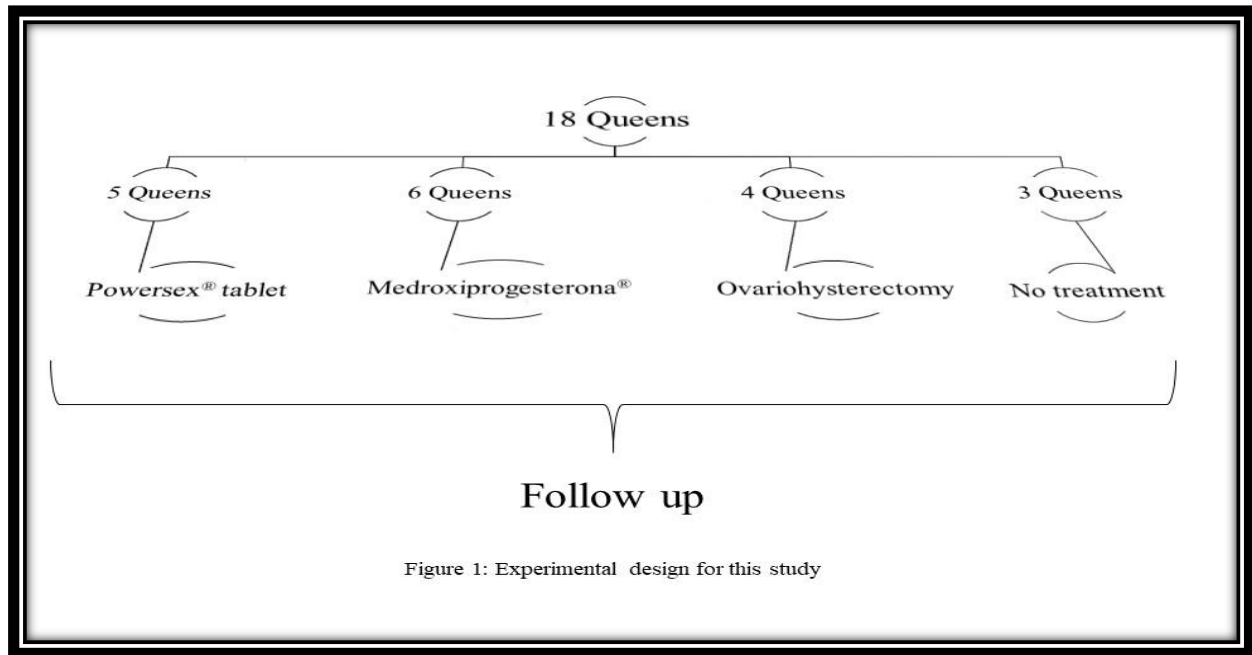
Deslorelin, a slow-release implant (Suprelorin 4.7 milligrammes, Virbac), is a GnRH agonist that can stop females and males from going into estrus and stop sperm production, respectively. If there are any bad consequences, the implant can be taken out. Both males and females have reported reversible weight increase (19) as the main bad impact. Some animals can be kept in check for up to three years. The implant allows prepubertal queens to postpone puberty until about two years of old (21).

Materials and Methods

The work was conducted in private veterinary clinics from 1-12-2024 to 1-3-2025. The study includes 18 cats from different breeds (Calico, Chinchilla, Himalayan Persian, Ragdoll, Scottish, and Siberian), aged between 6 and 48 months (average 16.2 months). All queens were brought to clinics to suppress or prevent estrus. The queens are allocated into four groups:

In the First group, all queens received Megestrol acetate (Powersex®, KPI, Ukraine) as one tablet (5mg) per 10-14 days. The second group received Medroxyprogesterone acetate (Medroxiprogesterona®, OVER, Argentina) as 50mg/cat. The third group underwent ovariohysterectomy under general anesthesia induced with Xylazine 2% at 0.15 ml/kg BW dose (Woerden, Holland) and maintained with ketamine 10% at 15mg/kg BW dose (Woerden, Holland).

The fourth group did not receive any treatment because the owners feared side effects after an explanation that the suspected side effects may appear after giving contraceptive medication Fig.1.



Results and discussion

The results are shown in Table 1. In the first group, 80% of the cats responded to treatment, in which one cat showed estrous signs after 2 days of drug administration. Also, no side effects were recorded. In the second group, two cats were missing their estrous signs after 2 days of injection, while 4 cats did not show any estrous signs. In the third group, ovariohysterectomy had been done for all cats under general anesthesia and then under vision to prevent complications after the operation. The fourth group did not receive any treatment as requested by the owner. According to the cost, in the first group, the cost was 1\$, which activity lasts for 10-14 days, while in the second group, the cost was 4\$ and the action lasts for 4-6 months. Ovariohysterectomy was performed in the third group, with a cost range from 50-75\$.

Megestrol acetate is a powerful progestin that works much better than natural progesterone (22) and binds to the androgen and glucocorticoid receptors with 75% and 37% affinity, respectively (23). MA is the shortest-lasting progestin on the veterinary market, with a half-life of only a few hours. It is also the only drug that can be called "short acting." In certain European nations, it comes in the form of pills or syrup that can be taken by mouth.

Treatment methods that use doses of MA below the "low" level of 0.625 mg/kg/week may be able to control oestrus activity and ovulation in cats. People have said that a different oral form of MA that hasn't been approved by the FDA can help reduce reproduction in feral cat colonies. The recommended dose is 5.0 mg per week for groups of five to seven cats. Felines are given an Italian oral version of MA at a dose of 0.011 mg/kg every 24 hours. The author has recently used this method successfully to control oestrus in queens.

Medroxyprogesterone acetate (MPA) is a synthetic version of progesterone that is stronger than progesterone in the second group. MPA works as an agonist for both androgen and glucocorticoid receptors, although it doesn't bind to them as well as MA (25). If it is taken by mouth, it will stay in the body for 12 to 17 hours. It has been available as a veterinary medicine in Europe for a long time, notably for cats, and is still available in some countries, such as Austria and Germany. In an early study on giving MPA to cats, two groups of six queens each were given 0.05 and 0.01 mg/kg of the drug every 24 hours for 12 months. This stopped oestrus (26).

Table 1: Different groups of treatment with their response.

Groups	Breed	Age (months)	Treatment	Cost/cat	Response
1 st	Siberian	12	Powersex® tablet	1\$	Absence of estrous signs
	Persian	12	Powersex® tablet		After 2 days, the cat showed estrous signs
	Persian	24	Powersex® tablet		Absence of estrous signs
	Scottish	12	Powersex® tablet		Absence of estrous signs
	Ragdoll	48	Powersex® tablet		Absence of estrous signs

2nd	Himalayan	18	Medroxiprogesterona®	4\$	The estrous signs disappeared after 2 days of injection
	Himalayan	10	Medroxiprogesterona®		Absence of estrous signs
	Persian	24	Medroxiprogesterona®		Absence of estrous signs
	Himalayan	12	Medroxiprogesterona®		Absence of estrous signs
	Persian	7	Medroxiprogesterona®		Absence of estrous signs
	Himalayan	18	Medroxiprogesterona®		The estrous signs disappeared after 2 days of injection
3rd	Chinchilla	24	Ovariohysterectomy	50-75\$	Need post-operative care
	Persian	24	Ovariohysterectomy		Need post-operative care
	Persian	18	Ovariohysterectomy		Need post-operative care
	Calico	12	Ovariohysterectomy		Need post-operative care
4th	Calico	12	No treatment	-----	-----
	Persian	6	No treatment		-----
	Persian	24	No treatment		-----

Conclusions

It was concluded that the contraceptive medication (progesterone) is widely used in Al-Hillah city to avoid side effects, and ovariohysterectomy to prevent mating, with 16% refusing any type of treatment.

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