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Immobilization of Common Genets, *Genetta genetta*, with a Combination of Ketamine and Xylazine

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ABSTRACT: A total of 15 immobilizations were performed on 12 common genets (*Genetta genetta*) with a combination of ketamine hydrochloride (KE) and xylazine hydrochloride (XY). Ten immobilizations were successful using a single mean administration of 5.7 mg/kg (SD = 1.7) KE and 9.8 mg/kg (SD = 2.9) XY; five immobilizations required supplemental doses that averaged 3.4 mg/kg KE and 1.9 mg/kg XY. Initial doses of 7 mg/kg KE and 10 mg/kg XY are recommended to successfully immobilize genets. Mean induction time and arousal time were 8 min (SD = 4, $n = 10$) and 113 min (SD = 57, $n = 9$), respectively. A combination of KE and XY appears to be an effective and safe immobilizing agent for common genets.

Key words: Common genets, chemical immobilization, *Genetta genetta*, ketamine, xylazine.

To our knowledge, little information exists on techniques to immobilize viverrids in general, and the genets (*Genetta* spp.) in particular. Use of ketamine hydrochloride (KE) is mentioned in some radio-tracking studies of genets (Ikeda et al., 1982, 1983; Palomares and Delibes, 1988), but only Maddock (1989) and Fuller et al. (1990) report doses used to immobilize rusty-spotted genets, *Genetta tigrina*, and large spotted genets, *Genetta maculata*. Here, we report the use of KE and xylazine hydrochloride (XY) to immobilize free-ranging common genets, *Genetta genetta*, living in Doñana National Park, southwestern Spain (37°9'N, 6°26'W).

Genets were captured in 1.5 × 0.5 × 0.5-m wire cage traps (home-made) or in padded foothold traps (Victor no. 1.5, Woodstream Corp., Lititz, Pennsylvania, USA). After capture, genets were transported to the laboratory and moved into a box with a sliding wall, that allowed us to intramuscularly inject KE (10 mg/ml; Ketolar, Parke Davis, Barcelona, Spain) and XY (2%; Rompun, Bayer, Barcelona, Spain)

into their hindquarters. Quantities fluctuated between 0.6 and 1.5 ml KE/animal, and between 0.4 and 1.0 ml XY/animal, depending on estimated body mass before immobilizations. Adult genets weighed between 1.75 and 2.00 kg (mean = 1.87 kg, SD = 0.09, $n = 10$). These values were derived from the methods of Beltrán et al. (1985) and Palomares and Delibes (1992) for immobilizing a similar-sized carnivore, Egyptian mongooses (*Herpestes ichneumon*), in the study area. An additional dose of KE, or of KE and XY, was administered when animals were only partially immobilized (Seal and Kreeger, 1987).

Induction time (time from injection until total immobilization) and arousal time (time from injection until first movement of head, leg or mouth) were recorded for each individual. Because XY has been reported to affect body temperature (Seal and Kreeger, 1987), rectal temperature was recorded as soon as practical after immobilization, and successive recordings were made at 8 to 10 min intervals until handling procedures were completed.

Six adults (4 males, 2 females) and four young (2 males, 2 females) were immobilized a total of 13 times between July 1987 and July 1989. Two other immobilizations on a young female and an adult male in September and November 1985, respectively (Palomares and Delibes, 1988), were included for analysis. These latter animals were captured with box-traps and handled the same as the others.

Ten immobilizations were successful with a mean dose of 5.7 mg/kg (SD = 1.7, range = 3.9 to 8.5) and 9.8 mg/kg (SD = 2.9, range = 4.0 to 14.9) of KE and XY, respectively. Nevertheless, five immobilizations required additional doses of KE ($n = 2$), and KE and XY ($n = 3$), administered

TABLE 1. Adequate and inadequate initial doses of ketamine hydrochloride (KE) and xylazine hydrochloride (XY), additional doses of KE and XY when required (KE2 and XY2, respectively), induction and arousal time, and rectal body temperatures at 10 and 20 min (TE-10 and TE-20, respectively), based on 15 immobilizations of free-ranging common genets in southwestern Spain.

	Adequate doses				Inadequate doses			
	Mean	SD	Range	n	Mean	SD	Range	n
KE (mg/kg)	5.7	1.7	3.9 to 8.5	10	4.7	2.2	3.9 to 8.5	5
XY (mg/kg)	9.8	2.9	4.0 to 14.9	10	8.5	4.3	4.5 to 14.9	5
KE2 (mg/kg)					3.4	1.3	2.5 to 5.4	5
XY2 (mg/kg)					1.9	1.9	0.0 to 4.5	5
Induction time	8	4	3 to 12	10	21	10	11 to 33	5
Arousal time	113	57	33 to 213	9	146	104	71 to 315	5
TE-10 (C)	39.7	0.9	38.3 to 41.1	9	38.2	1.5	36.3 to 40.0	5
TE-20 (C)	39.5	1.1	37.9 to 41.0	9	38.1	1.6	35.9 to 40.0	5

13 min on average (SD = 3) after the first injection (Table 1).

Mean induction time ($n = 10$) was 8 min (SD = 4, range = 3 to 12), and mean arousal time ($n = 9$) was 113 min (SD = 57, range = 33 to 213).

Mean rectal temperatures were similar 10 and 20 min, both in individuals immobilized with a single dose and in individuals which required an additional dose; however, the latter group had slightly lower rectal temperatures than the genets immobilized with a single dose (Table 1). Based on a Mann-Whitney U -test (Zar, 1984) these differences were not significant ($Z = 1.67$ and 1.60 , $P = 0.095$ and 0.109 , for 10 and 20 min, respectively). Rectal temperatures of >40 C were recorded in three individuals immobilized during the summer.

No animal died during the immobilization or recuperation process, and no spasms or convulsions with muscular contractions as noted in other carnivores (Boyd et al., 1990) were observed.

In summary, genets were successfully immobilized using a combination of KE and XY. We recommend an initial dosage of at least 7 mg/kg of KE and 10 mg/kg of XY to successfully immobilize genets. We used much lower dosages of KE than reported by Maddock (1989) for immobilizing rusty-spotted genets and by Fuller et al. (1990) for immobilizing large spotted

genets (mean = 65.5 and 31 mg/kg of KE, respectively), despite the body mass of these three species being similar. Maddock (1989) used only KE, or a combination of KE and acetylpromazine, and Fuller et al. (1990) used a combination of KE and promazine hydrochloride. From our results, it also seemed that the use of XY decreased the quantity of KE required. Additionally, the combination of KE and XY resulted in increased length of immobilization time than reported by Maddock (1989) and Fuller et al. (1990).

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