ANESTHESIA IN THE COYOTE USING A COMBINATION OF KETAMINE AND XYLAZINE[1]

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Abstract: Ketamine and xylazine were combined to provide anesthesia for coyotes. The drugs were tested in eight adult animals divided equally by sex. A dosage combining 5.5 mg./kg. of each drug provided effective anesthesia for periods from 45 to 60 min.

INTRODUCTION

Effective anesthesia for the coyote *(Canis latrans)* can be a challenge. Because of the temperament of this species, a quick-acting intramuscular agent is preferred. Ketamine, 30 mg./kg., administered intramuscularly to two coyote pups produced very light anesthesia for 15 to 20 min.[2] A combination of ketamine and xylazine has been used for anesthesia in the rat, rabbit and horse.[1,3,4] A synergistic anesthetic effect was reported when these drugs were combined.[4]

Ketamine hydrochloride is a rapid-acting dissociative anesthetic agent whose pharmacological action is characterized by profound analgesia, normal pharyngeal-laryngeal reflexes, mild cardiac stimulation and respiratory depression. Xylazine is a sedative and analgesic as well as a muscle relaxant. A study was undertaken to evaluate a combination of ketamine and xylazine in the coyote.

MATERIALS AND METHODS

The ketamine[2] and xylazine[3] combination was tested in eight adult coyotes (four males and four females). All were wild-caught animals maintained in chain-link enclosures provided with insulated aluminum houses.

Following trials using various dosage combinations from 4.5 to 6.5 mg./kg. a dosage of 5.5 mg./kg. of each drug was found to be most effective. Each animal was weighed and the drugs (mixed together) were injected intramuscularly into a rear leg. At the lower dosage rates effective muscle relaxation was not obtained. The higher dosages produced deep anesthesia with shallow respiration and decreased heart rates. The animals were not fasted prior to administering the drugs. Vomiting was not observed in any of the coyotes.

Times for induction, duration of anesthesia and recovery were recorded. Loss of reflexes was detected by pinching the abdominal skin and underlying musculature with a tissue forceps. Initial recovery was determined as the time when muscle reflexes returned. Full recovery was recorded when each coyote became ambulant. Since evaluation of reflex responses and levels of anesthesia were subjective, the data were not analyzed statistically.

RESULTS AND DISCUSSION

Results are shown in Table 1. The mean times measured for the effects of

[1] Financial support provided by the University of Kansas Faculty Senate Research Committee.

[2] Ketamine (Vetalar®) Parke, Davis and Company, Detroit, Michigan 48232, USA.

[3] Xylazine (Rompun®) Haver-Lockhart Laboratories, Division of Bayvet Corporation, Shawnee, Kansas 66201, USA.

TABLE 1. Induction, duration of anesthesia and recovery in coyotes using 5.5 mg./kg. each of ketamine and xylazine intramuscularly.

Sex	Weight (kilograms)	Induction[a] (minutes)	Anesthesia[b] (minutes)	Recovery[c] (minutes)
Male	10.0	7	63	30
Male	12.3	8	47	25
Male	13.6	12	48	28
Male	15.5	10	52	34
Female	6.8	10	42	25
Female	10.0	10	45	27
Female	11.4	8	49	28
Female	12.7	15	60	35
Four males	12.8 (10.0-15.5)[d]	9.2 (7-10)	52.5 (47-63)	29.2 (28-34)
Four females	10.2 (6.8-12.7)	10.7 (8-15)	49.0 (42-60)	28.7 (25-35)
All males and females	11.5 (6.8-15.5)	10.0 (7-15)	50.7 (42-63)	29.0 (25-35)

[a]Injection until loss of reflexes

[b]Loss of reflexes until initial return of reflexes

[c]Initial return of reflexes until ambulation

[d]Mean (range)

the drug combination in the eight coyotes were as follows: induction of anesthesia, 10 min; duration of anesthesia, 50.7 min; recovery time, 29 min. No periods of excitement nor anxiety were observed in any of the animals either during induction or recovery. The drug combination of 5.5 mg./kg. each of ketamine and xylazine injected intramuscularly provided effective anesthesia for a duration of approximately 50 min in the coyote.

LITERATURE CITED

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Received for publication 6 April 1978