

KETAMINE HYDROCHLORIDE AS AN ANESTHETIC FOR BIRDS¹

by

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Because I have not been completely satisfied with the methods used previously to anesthetize birds, I have recently used ketamine hydrochloride (Ketaset—Bristol Lab.,²; Vetalar—Parke, Davis²) both experimentally and on clinical cases. The experience to date leads me to conclude that ketamine can be used safely and effectively as a general anesthetic for birds.

Experimental Use. At the highest dosage (20 mg per lb) recommended for cats, only mild tranquilization was induced in pigeons following injection of ketamine into the pectoral muscles. By increasing the dosage in small increments, it was found that general anesthesia could be induced in the experimental pigeons with a dose of 100 mg per lb (10 mg per 45 g). Neither a pharyngeal reflex nor salivation were apparent in the anesthetized pigeons; a palpebral reflex could be elicited. Respiratory and cardiac rates were reduced to 16 per minute, respectively (normal rates are 30 to 50 respirations per minute and 240 to 300 heart beats per minute). Laparotomies were performed on the anesthetized birds. The pigeons were anesthetized five times during a four-week period with 100 mg per lb of ketamine. There were no visible side effects nor fatalities.

Case Examples. 1. An adult, Red-tailed Hawk was anesthetized with ketamine (80 mg per lb) given intramuscularly to enable examination of a fractured wing. The toe pinch reflex was barely evident 10 minutes after the drug was given. The hawk blinked frequently and salivated profusely. When 0.1 mg of atropine was given intramuscularly, the salivation was reduced but not stopped. The hawk's respirations were slightly depressed and a mild tachycardia was present. The fracture site was manipulated without causing the bird any apparent discomfort. The hawk was standing three hours after being anesthetized.

2. A Green Heron (weight, 105 g) with a midshaft fracture of the tibiotarsal bone and a compound fracture of the humerus was given 25 mg of ketamine intramuscularly. Surgical anesthesia was reached seven minutes later. Both frac-

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²Trade names mentioned; these are veterinary pharmaceutical products: the corresponding medical pharmaceutical products are Ketaject—Bristol Lab., and Ketalar—Parke, Davis.

tures were repaired by open reduction. Neither profound respiratory depression nor salivation was noticed during the 45 minutes taken to complete the surgical repairs. The bird was alert two hours after being anesthetized.

3. A Black Vulture (weight, 2 lb) was anesthetized with 200 mg of ketamine given intramuscularly to repair a humeral fracture. Open reduction was performed to insert an intramedullary pin. Though a palpebral reflex persisted, salivation was not noticed. The bird was standing three hours after being anesthetized.

4. A Screech Owl (weight, 100 g) with a fractured humerus was anesthetized with 10 mg of ketamine given intramuscularly. The open reduction and repair took 30 minutes. An additional 10 mg of ketamine was needed about half way through the repair as the owl began to show evidence of pain. Slight salivation and a palpebral reflex were present. The owl was standing two hours after being anesthetized.

Further investigation may be necessary to establish a safe dosage of ketamine for debilitated birds. I have injected increments of 10 mg, however, into pigeons during a 45-minute interval until satisfactory anesthesia was induced without untoward effects. Small, debilitated birds, such as those with tumors, might be given one mg per 45 g at intervals until surgical anesthesia was induced.

Additional Notes. The tachycardia observed in the red-tail was due to the cholinergic blocking activity of atropine. The anticholinergic affect is on the parasympathetic fibers of the vagus nerve. The vagus nerve when stimulated causes the heart to slow (bradycardia). Atropine is used in surgery to prevent bradycardia and to dry up salivary and bronchial secretions. The tachycardia was due to lack of vagal stimulation.

The only problem I've encountered using Ketaset is that 100 mg/lb seems a little high for birds of prey. I usually make an initial injection of 50 mg/lb and increments of 25 mg/lb as needed. I feel that 50 mg/lb is quite sufficient for procedures as imping, beak trimming, etc. Surgery usually requires a little more ketamine.

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