

## Butorphanol; Azaperone; Medetomidine

**SCHEDULING STATUS:** S5

### **CURRENTLY COMPOUNDED FORMULATIONS:**

Active ingredient(s)	Injectable	Oral equine paste	Oral carnivore paste	Orals for exotics	Oral solution/suspension	Topical treatment	Shampoo	Capsules/Tablets	Oral powder
Butorphanol; azaperone; medetomidine	✓								

**REGISTERED PRODUCT/ TRADE NAME:** No veterinary-labelled products available. Various registered products available containing individual actives.

**PHARMACOLOGICAL CLASSIFICATION:** Butorphanol is a opiate partial agonist, azaperone is classified as an butyrophenone tranquilizer and medetomidine is an alpha<sub>2</sub> adrenergic agonist.

**PHARMACOLOGICAL ACTION:** Butorphanol: Its agonist activity is thought to occur primarily at the kappa and sigma receptors and the analgesic actions at sites in the limbic system. Butorphanol is considered to be, on a weight basis, 4-7 times as potent an analgesic as morphine.<sup>[1]</sup> Butorphanol is an opioid with both antagonistic and agonistic effects. It is a mu-receptor antagonist and has the ability to reverse the effects of the more potent opioids in a similar way to that of nalorphine.

Azaperone is a neuroleptic, exerting primarily an antidopaminergic effect. Tranquilization and sedation. Also has anti-emetic activity, reduced motor activity and inhibition of CNS catecholamines.

Medetomidine has an alpha<sub>2</sub>:alpha<sub>1</sub> selectivity factor of 1620, and when compared to xylazine is reportedly 10x more specific for alpha<sub>2</sub> receptors versus alpha<sub>1</sub> receptors. The pharmacologic effects include: depression of CNS (sedation, anxiolysis), GI and endocrine functions, peripheral and cardiac vasoconstriction, bradycardia, respiratory depression, diuresis, hypothermia, analgesia, muscle relaxation and blanched or cyanotic mucous membranes. Can cause hypertension longer than xylazine. Also induces sedation for a longer period than does xylazine.<sup>[1]</sup>

**INDICATIONS:** Used in wildlife for game capture purposes.

### **DOSAGE AND DIRECTIONS FOR USE:**

#### WILDLIFE:

Various dosages are used in various species. For specific dosages, refer to the book Chemical and Physical Restraint of Wild Animals, Third edition (2021).

### **WARNINGS/ PRECAUTIONS/ CONTRA-INDICATIONS:**

- All opiates should be used with caution in patients with hypothyroidism, severe renal insufficiency, adrenocortical insufficiency (Addison's), and in geriatric or severely debilitated patients. Like other opiates, butorphanol must be used with extreme caution in patients with head trauma, increased CSF pressure or other CNS dysfunction (e.g., coma).<sup>[1]</sup>
- The adverse effects reported with medetomidine are essentially extensions of its pharmacologic effects including bradycardia, occasional AV blocks, decreased respiration, hypothermia, urination, vomiting,

hyperglycemia, and pain on injection (IM). Rare effects have also been reported, including prolonged sedation, paradoxical excitation, hypersensitivity, apnea and death from circulatory failure.<sup>[1]</sup>

**REFERENCES:**

1. Plumb's Veterinary Drug Handbook, Sixth edition, by Donald C. Plumb
2. Chemical and Physical Restraint of Wild Animals, Third edition (2021), Edited by Michael D. Kock, David Meltzer and Richard Burroughs