

## *Butorphanol Tartate*

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This is a synthetic morphinan analgesic with narcotic agonist-antagonist activity. It is commonly used pre-, intra- and post-operatively, as it increases the well-being of an animal-patient after a painful operation. It exerts analgesic effects via the CNS (central nervous system), by acting on the  $\mu$ -receptors, which results in analgesia, respiratory depression, miosis and a feeling of well-being. Stimulation of the  $\kappa$ -receptors by butorphanol results in analgesia and sedation, with only a slight effect on the cardiovascular system. The analgesia provided by this drug is thus characterized by fewer adverse reactions than other opioids.

Its effect is immediate after IV injection, while it becomes effective after about 30 min with SC administration. Its half-life elimination is 1.64 h and 3.16 h after IV and SC injection respectively.

Highest levels are found in the liver, kidney and intestine, but the drug also concentrates in the lungs, heart, fat tissues and blood cells. Degradation of butorphanol through hydroxylation, N-dealkylation and conjugation takes place in the liver. This drug should thus be avoided in patients with heart, liver and/or renal insufficiency.

It passes the placenta barrier and is distributed into maternal milk.

In some species, butorphanol has shown antitussive effects.

### **Adverse Effects**

Known side effects are occasional lack of appetite, more rarely sedation, vomiting, or diarrhea. Generally, it must be used with caution in older or debilitated animals. In horses, higher dosages may lead to nystagmus, seizures or decreased GI motility, or induce CNS excitement, resulting in increased ambulation, tossing/jerking of the head, etc. In one case, a rabbit is reported to have exhibited overly self-confident behavior after intake of butorphanol.

Treatment should not go beyond 7-8 days. Prolonged use may lead to physical dependence or a decrease in response to the prescribed dose.



In case this drug is administered concurrently with other CNS depressants (alcohol, analgesic agents, antihistamines, barbiturates, phenothiazine tranquilizers), the dosage of butorphanol needs to be reconsidered and may need to be decreased; concurrent administration can lead to additive CNS and/or respiratory depression. One manufacturer (Fort Dodge, USA) specifically says about the use of this drug in rodents and rabbits: "It is undesirable to administer any other sedative or analgesic drugs during treatment with Torbutrol [= butorphanol] as these are likely to produce additive effects."

### Dosage

Morphasol SC	(Dr. E. Gräub, CH)	susp	0.1-0.5 mg/kg q 2-4 h; IV,
Torbugesic SC	(Fort Dodge, USA)	susp	0.1-0.5 mg/kg q 2-4 h; IV,
Torbutrol	(Fort Dodge, USA)	tab	0.1-0.5 mg/kg q 8-12 h ; PO
Stadol NS	(Bristol-Myers Squibb, USA)	susp	10mg/ml bottle

### Further Information

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SEPTEMBER 2003

