Anticholinergics

Nervous System Receptor Background

	Cholinergic	Adrenergic
Neurotransmitter	Acetylcholine (Ach)	Epinephrine Norepinephrine
Function	Signal transduction in the autonomic nervous system Muscle contraction Cognitive function learning/memory	Regulates arousal, attention, mood and stress response
Receptor	Cholinergic receptors (activated by Ach) *Muscarinic and Nicotinic receptors are cholinergic receptors	Adrenergic receptors (activated by Epinephrine and Norepinephrine)
Nervous System Branch	Primarily parasympathetic branch (rest and digest) which promotes slowing of the heart rate and relaxation of smooth muscles	Primarily sympathetic branch (fight or flight) which promotes increasing the heart rate and blood pressure
Location	Throughout the body, central nervous system, autonomic ganglia and peripheral nerves	Throughout the body, central nervous system, peripheral nerves, various organs

Mechanism of Action
Anticholinergics: muscarinic acetylcholine receptor antagonists *typically competitive blockers with a minimal effect on nicotinic acetylcholine receptors. These drugs OPPOSE the effects of the parasympathetic nervous system, so they are also known as parasympatholytics

Uses:

1. Prevent or treat vagally mediated bradycardia and bradyarrhythmias including atrio-ventricular block
    - *Vagally mediated bradycardia can occur secondary to ocular traction/pressure (oculocardiac reflex) or with gastric distension. They can also occur secondary to the use of opioids in dogs*
2. Reduce the volume of respiratory salivary secretions
    - *This may be desirable in anesthetized patients that are not usually able to swallow/cough. Respiratory secretions may also accumulate and block the small airways/endotracheal tubes or elicit laryngospasm in cats*