

Vet 409: Micturition Overview

Nervous System	Nerve	Innervates	Receptor Type	Neurotransmitter	Function
Sympathetic	Hypogastric (L1-L4)	Internal Urethral Sphincter Bladder	Alpha-1 Beta	Norepinephrine Norepinephrine	Constrict sphincter Relax bladder
Parasympathetic	Pelvic (S1-S3)	Bladder wall	Muscarinic	Acetylcholine	Constrict
Somatic	Pudendal (S2-S4)	External Urethral Sphincter	Nicotinic	Acetylcholine	Constrict

Clinical Relevance

Incontinent Dog with Urethral Sphincter Mechanism Incompetence

Internal sphincter is weak

Want to use sympathetic drug (alpha-1 agonist to tighten urethral sphincter)

Drug: Phenylpropanolamine (Proin)

Urethra was blocked for a considerable amount of time

Urethra became atonic (want to contract bladder)

Want to use a parasympathetic drug (parasympathomimetic)

Drug: Bethanechol chloride (Urecholine, Myocholine)

Urethra is too tight

Want to relax the urethra

Use a sympathetic drug (alpha-1 antagonist)

Drug: Prazosin