Optimal Flush for Urethral Plugs?

FOCUS: Emergency/Critical Care

Urethral plugs are a common cause of feline urethral obstruction, frequently occurring in the postprostatic penile urethra (ie, the narrowest portion). Many smooth and skeletal muscle relaxants have been evaluated to relax the urethral musculature, reducing potential for secondary urethral damage; only those acting on striated muscle are useful for relaxing the musculature of the postprostatic penile urethra. Dantrolene and succinylcholine have been effective in this application but have potential systemic side effects. Atracurium besylate (AB) is a neuromuscular-blocking agent that does not depend on liver or renal function for metabolism.

In this nonblinded study of 2 groups of cats with urethral plug obstruction, saline (4 mL, n = 20) or AB solution (0.5 mg/mL, n = 25) was instilled in the urethra followed by retrograde flushing; this was repeated until plug removal was achieved. The percentage of cats in which plug removal was achieved at first attempt was higher in the AB group than in the control (64% vs 15%, respectively). The mean time required for removal was shorter in the AB group than for the control (21.1 ± 16.2 seconds vs 235.2 ± 132.4 seconds, respectively). Intraurethral administration of AB appeared to be a safe, effective way to decrease the time needed to relieve urinary obstructions.

Commentary

Reestablishing urethral patency in male cats with urethral plugs typically involves retrograde flushing via urethral catheterization. Urethral irritation or inflammation leading to contracture of the urethral musculature can impede retrograde flushing. IV smooth and striated muscle relaxants may facilitate retrograde urethral flushing but may also have adverse systemic effects. This study provided the first evidence that intraurethral administration of a skeletal muscle relaxant (eg, AB) is effective without apparent systemic side effects. Since urethral and bladder pressures were not measured, efficacy of the intraurethral infusion could be associated with decreased intravesicular pressure as well as decreased intraurethral pressure.—*Gregory F. Grauer, DVM, MS, DACVIM*

Source

Effect of intraurethral administration of atracurium besylate in male cats with urethral plugs. Galluzzi F, De Rensis F, Menozzi A, Spattini G. ***J SMALL ANIM PRACT*** 53:411-415, 2012.

A Close Eye on Glaucoma Treatment

Treatment for glaucoma, a common ocular disease in dogs, includes topical ophthalmic solutions that decrease intraocular pressure (IOP) and pupil diameter (PD). Dose-response studies conducted in normal dogs and beagles with inherited glaucoma were used to establish concentrations that maximize therapeutic response. In this study, 4 concentrations (0.0033%, 0.001%, 0.00033%, 0.0001%) of travoprost (Travatan, alcon.com) were used q24h in 12 glaucomatous beagles. Dogs were randomly assigned to a treatment group and the right eye was treated with travoprost; the left eye was a control. After a 7-day washout period, the left eye was treated and the right eye was the control. IOP and PD were measured before and at 3, 6, and 24 hours after installation. This study found that all but the 0.0001% concentration of travoprost significantly lowered IOP and PD, including the 0.00033% concentration, which is one-twelfth the concentration of the commercial product (0.004%).

Commentary

Topical prostaglandins have been the choice drug for primary glaucoma treatment in veterinary medicine. The type of glaucoma (primary/secondary) and further classification of primary glaucoma (open-angle/angle-closure) are equally important for drug selection and management. The glaucomas are not just a single disease, much less requiring a single therapeutic drug regimen. Species and individual aqueous humor dynamics have impact on drug effectiveness. In this study, concentrations of travoprost as low as 0.00033% decreased IOP at early time points, but when managing primary glaucoma, maintaining low stable IOPs with fewer fluctuations throughout the circadian IOP cycle is critical. This was only partly achieved with the 0.0033% concentration. In addition, the concentrations evaluated are not commercially available. Travoprost 0.004% may be more expensive than other equally effective and well studied PGF_2 derivatives (eg, latanoprost).—*Cherlene Delgado, DVM*

Source

Dose response for travoprost in the glaucomatous beagle. MacKay EO, McLaughlin M, Plummer CE, et al. ***VET OPTHALMOL*** 15:31-35, 2012.

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