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LETTERS)**RABBIT VS. RAT URINARY BLADDER: EFFECTS OF IN VITRO HYPOXIA**

Aims of Study: Studies indicate that bladder hypoxia may be an etiological factor for lower urinary tract dysfunction. Rat and rabbit are two popular species of experimental animals used to study lower urinary tract function and dysfunction. The objective of the reported study was to compare directly the effect of *in vitro* hypoxia on the contractile responses of the rat and rabbit urinary bladder to different forms of stimulation.

Methods: Sexually mature male New Zealand White rabbits and Sprague Dawley rats were compared. Each bladder was excised while the animal was anesthetized, and longitudinal bladder strips were cut, then mounted in organ baths. Two grams tension was placed on all strips. The effects of 1, 2, 3, and 4 hours hypoxia followed by 1 hour of reoxygenation on contractile responses of bladder strips to field stimulation (FS), carbachol (100 μ M), ATP (1 mM) and KCl (120 mM) were determined.

Results: Contractility, per unit tissue mass, of rat bladder strips was significantly greater than was that of rabbit bladder strips in response to FS (all frequencies), carbachol, KCl and ATP. Hypoxia (followed by re-oxygenation) resulted in time-dependent progressive reduction in contractile responses of bladder strips to all stimuli. Rat bladder was significantly more sensitive to hypoxia than was rabbit bladder in response to FS and carbachol. Hypoxia induced similar effects on rat and rabbit bladder responses to ATP and KCl.

Conclusion: Rat bladder neurogenic and cholinergic responses are significantly more sensitive to hypoxia than are those of rabbit bladder, which may be due to the rat bladder's greater contractile force generation and previously reported higher Ca^{2+} -ATPase activity