



ACETIC ACID-INDUCED HYPERACTIVE BLADDER MODEL

A MODEL FOR OVERACTIVE BLADDER

MODEL

Cystometry in anesthetized animals after activation of C-fibers.

This experimental model mimics the functional changes (increases in micturition frequency and reductions in bladder capacity) observed in the urinary bladder of patients with overactive bladder. Intravesical infusion of dilute acetic acid induces these changes by activating C-fibers.

SPECIES

Rat, mouse, guinea-pig

INTEREST

- This model is suitable for testing compounds for effects on the increased frequency and decreased bladder capacity associated with overactive bladder in addition to other bladder parameters (see below).
- This model is often used as secondary model to the isovolumetric model.
- Compounds that show a positive response in this model include compounds that affect afferent nerves such as dual serotonin/norepinephrine reuptake inhibitors as well as compounds that affect smooth muscle and efferent nerves such as K_{ATP} channel openers, β -adrenoceptor agonists and muscarinic antagonists.

MODEL DESCRIPTION

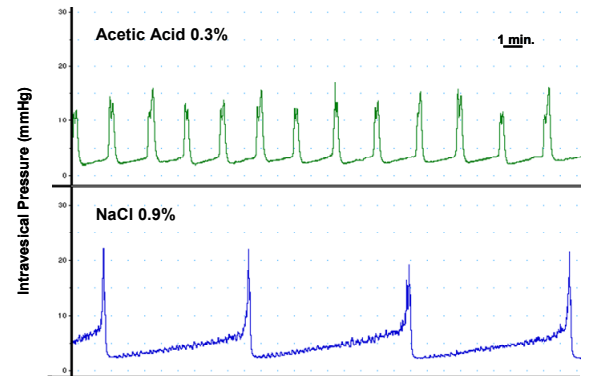
- Cystometry during continuous intravesical infusion of dilute acetic acid.
- Test compounds can be administered *via* various routes (i.v., i.p., p.o., s.c. or by osmotic pumps) and cystometric parameters evaluated for up to two hours post-administration.

PARAMETERS EVALUATED

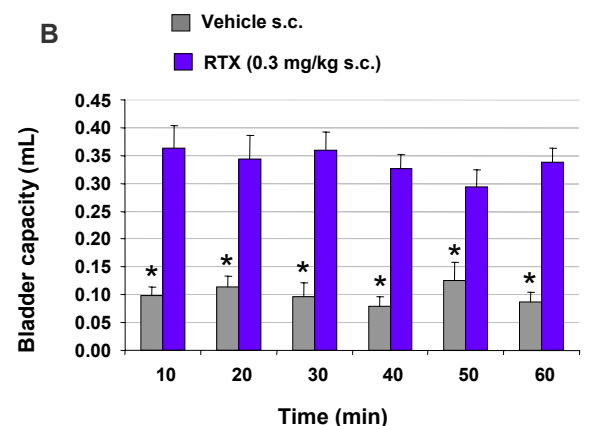
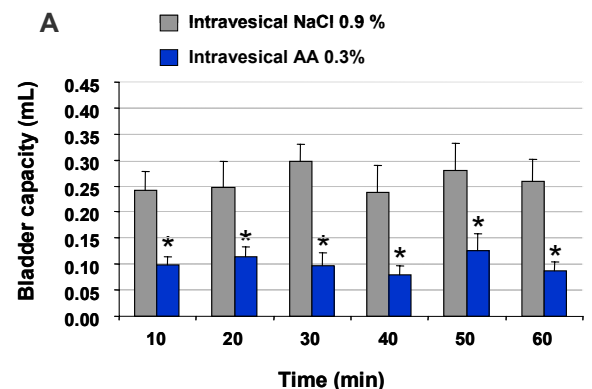
- Bladder capacity
- Intercontraction intervals during continuous cystometry
- Micturition pressure
- Micturition volume
- Basal intravesical pressure
- Threshold pressure for micturition

SCIENTIFIC PUBLICATIONS

- Mitsui T et al, *J Neurophysiol* **86**: 2276-84, 2001
- Yu Y and de Groat WC, *Brain Res* **807**: 11-18, 1998
- Katofiasc M et al, *Life Sci* **71**: 1227-36, 2002



Typical recordings in anesthetized female rats during cystometry with physiological saline or 0.3 % acetic acid.



* P < 0.05 by Student t-test

(A) The reduction in bladder capacity produced by AA treatment and (B) reversal by RTX pre-treatment.