



Acetic acid-induced hyperactive bladder

A MODEL FOR OVERACTIVE BLADDER

Model

Cystometry in anesthetized animals after activation of C-fibers. This experimental model mimics the functional changes (increase in micturition frequency and reduction in bladder capacity) observed in the urinary bladder of patients with overactive bladder. Intravesical infusion of diluted 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 cystomanometric parameters.
- 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, α -adrenoceptor agonists and muscarinic antagonists.

Model Description

- Cystometry during continuous intravesical infusion of diluted 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.

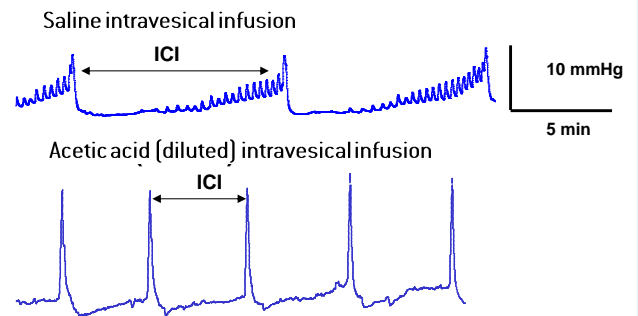
Parameters evaluated

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

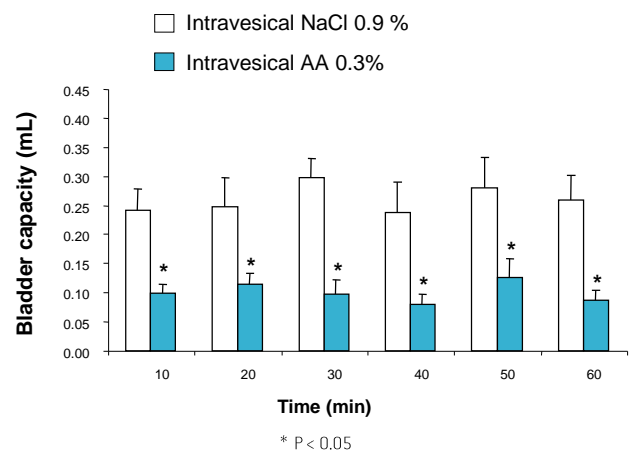
Scientific publications

- Mitsui T *et al.*, J. Neurophysiol. 86: 2276-84, 2001
- Yu Y and de Groat WC, Brain Res. 807: 11-18, 1998
- Kalinichev M *et al.*, Br. J. Pharmacol. 171:995-06. 2014
- Katofiasc M *et al.*, Life Sci. 71: 1227-36, 2002

Typical cystometric recording anesthetized female rats during cystometry with physiological saline or diluted acetic acid.



Effect acetic acid on bladder capacity in anesthetized female rats



Effect of naproxen on ICI in anesthetized female rats

