

## THE EFFECT OF INTRAVESICAL LIDOCAINE INSTILLATION IN NORMAL AND BLADDER OUTLET OBSTRUCTION (BOO)-INDUCED OVERACTIVE BLADDER RATS

### Hypothesis / aims of study

Lidocaine is a common local anesthetic and intravesical instillation is currently being used to relieve the symptoms of pain, frequency and urgency in patients with IC/PBS. However, the frequent instillation that is needed is cumbersome and better intravesical delivery systems requiring less often instillation are currently being developed with some targeting to carry lidocaine. We investigated the effect of intravesical lidocaine instillation in bladder outlet obstruction (BOO)-induced OAB rats

### Study design, materials and methods

Twenty four Sprague-Dawley rats were divided into two groups to investigate the effect of intravesical lidocaine treatment in normal and BOO rats (n=12 each). Additional normal (n=6) and BOO (n=6) rats underwent capsaicin pretreatment (125mg/kg s.c.) before undergoing cystometry. After placing a PE-50 tubing into the bladder, awake cystometry was performed by infusing physiological saline followed by 1.0% lidocaine into the bladder at a slow infusion rate (0.04ml/min). The expression of c-fiber in spinal cord (L<sub>6</sub>) was investigated by western blot.

### Results

Intercontraction interval (ICI) was increased after 1% lidocaine instillation (500.56±24.4 vs. 641.0±49.3 seconds, p<0.01), but basal pressure (BP), threshold pressure (TP) and micturition pressure (MP) did not change in the control group. In BOO-induced OAB group, ICI was significantly increased after 1% lidocaine instillation (135.8±12.87 vs. 274.2±33.21, p<0.01). Furthermore, non-voiding contractions were significantly reduced. There was no change in ICI, BP, TP and MP in both normal and BOO capsaicin pretreatment groups. The expression of c-fiber in spinal cord (L<sub>6</sub>) was significantly decreased after intravesical lidocaine treatment in the BOO group.

### Interpretation of results

Increase of ICI after intravesical lidocaine in both normal and BOO rats and blockage of this effect after capsaicin pretreatment suggests that intravesical lidocaine acts on the c-fiber to decrease not only non-voiding contractions but urinary frequency as well.

### Concluding message

Intravesical lidocaine treatment may alleviate OAB symptoms including urinary frequency

### References

1. C. LOWELL PARSONS, SUCCESSFUL DOWNREGULATION OF BLADDER SENSORY NERVES WITH COMBINATION OF HEPARIN AND ALKALINIZED LIDOCAINE IN PATIENTS WITH INTERSTITIAL CYSTITIS, Urology 2005; 65:45-48

### Disclosures

**Funding:** This study was supported by a grant of the Korea Healthcare Technology R&D Project, Ministry for Health, Welfare & Family Affairs, Republic of Korea (HI10C2020). **Clinical Trial:** No **Subjects:** ANIMAL **Species:** Rat **Ethics Committee:** Department of Laboratory animal resourced, Yonsei biomedical research institute, Yonsei university college of medicine