

Infections/Inflammation of the GU Tract: Interstitial Cystitis
Moderated Poster
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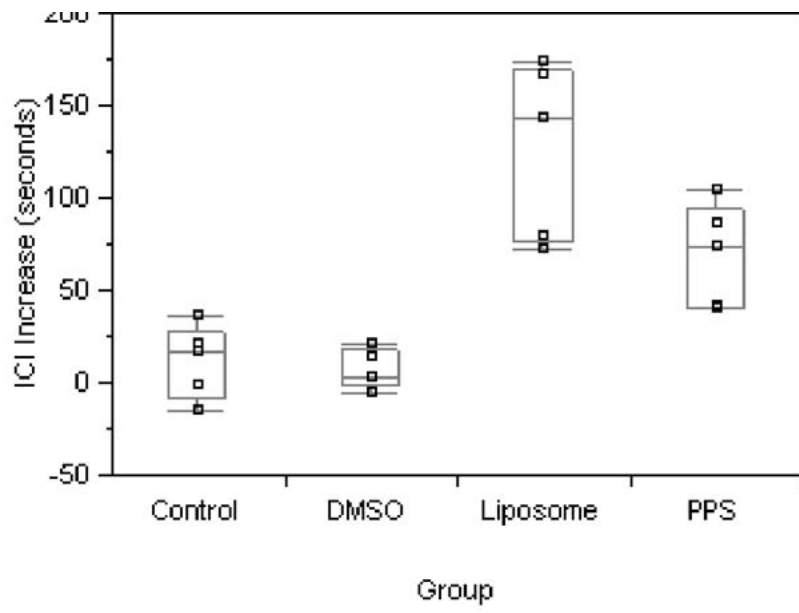
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INSTILLATION OF LIPOSOMES IS SUPERIOR TO DMSO OR PENTOSAN POLYSULFATE IN REDUCING BLADDER HYPERACTIVITY

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Introduction and Objective: To compare effect of intravesical liposomes (LPs), dimethyl sulfoxide (DMSO), and pentosan polysulfate (PPS) on a model of chemically-induced overactive bladder in the rat. Previously, our lab has demonstrated partial reversal of protamine sulfate (PS) and potassium chloride (KCL) -induced bladder hyperactivity by intravesical LP. The relative impact of LP versus other agents used in the clinic for treatment of IC is unknown. **Methods:** Bladder reflex activity of female SD rats (250-300g) was evaluated by continuous cystometry under urethane anesthesia (1.2g/kg). A transurethral bladder catheter (PE-50) connected by three-way stopcock to a pressure transducer and syringe pump used to record intravesical pressure. A control cystometrogram (CMG) was obtained by slow filling with normal saline (0.04mL/min) for 2h. Bladder hyperactivity was then induced by 1 hour infusion of PS (Sigma Chemical, 10 mg/mL) followed by a 1 hour infusion of KCl (500mM). Animals were then infused with KCl-based preparations containing either 50% DMSO (n=5), pentosan polysulfate (300mg in 50mL, n=5), or liposomes (Lipella Pharmaceutical, n=5) for 2h. The parameters measured included the intercontraction interval (ICI) and pressure threshold (PT) as well as baseline pressure (BP) which is representative of the post-contraction pressure nadir. **Results:** After induction of hyperactive bladder, there was no significant difference in ICI, PT, or BP among groups. No statistically significant increase in ICI was observed with DMSO infusion. ICI was increased following infusion of PPS (109.3% increase, $p < 0.005$) and LP (185.7% increase, $p = 0.005$) (Figure 1). PT was not significantly affected by LP infusion but showed a small increase with PPS (12.4% increase, $p < 0.05$). A large and significant increase in PT was elicited by DMSO (116.5% increase, $p < 0.005$). BP was increased with DMSO (119.6%, $p = 0.005$) but not with LP or PPS.

Conclusions: Intravesical instillation of DMSO did not have a beneficial effect in a PS/KCL bladder hyperactivity model while both PPS and liposome did with the intravesical liposome achieving nearly doubling of the intercontraction interval above PPS. Intravesical liposome may be considered a new therapy for interstitial cystitis.



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