

## THE EFFECT OF ESTROGEN RECEPTOR BLOCKER, TAMOXIFEN ON BLADDER FUNCTIONS AND HISTOLOGY IN A RAT INTERSTITIAL CYSTITIS MODEL

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**INTRODUCTION & OBJECTIVES:** Interstitial cystitis can cause progressively significant decreases in bladder capacity and compliance. High incidence of morbidity of medical and surgical treatment may limit long-term patient compliance in patients with chronic inflammation of the bladder. The purpose of this study was to investigate the effect of tamoxifen citrate on bladder functions and histology in a rat interstitial cystitis model.

**MATERIAL & METHODS:** The study included 32 female Sprague-Dawley rats with interstitial cystitis induced by intravesical instillation of hydrochloric acid. The acid instillation was repeated monthly to maintain chronic inflammation. The treatment group (n=15) received 0.4 mg/kg/day of tamoxifen citrate with orogastric tube, and the control group (n=17) received no treatment. Urodynamic studies were performed in all rats before the treatment and at sacrifice. The rats were sacrificed at 2 weeks, 1 month and 2 months. The bladders were removed and examined histologically for mast cells and inflammatory changes.

**RESULTS:** The maximal bladder capacity and compliance after the treatment with tamoxifen citrate significantly increased from pre-treatment to post-treatment (p=0.02 and p=0.01, respectively). The mean bladder capacity increased by 66.4% ±24.6 in the treatment group and 21.1% ±17.7 in the control group, revealing no significant difference (p=0.14). The mean bladder compliance increased by 73.6% ±24.7 in the treatment group and 13.5% ±16.2 in the control group, revealing statistically significant difference between the two groups (p=0.04). At 2 weeks, the mean maximal bladder capacity increased by 89.2% ±44.38 in the treatment group and decreased by 18.7% ±13.93 in the control group, revealing statistically significant difference (p=0.04). The histologic studies revealed no significant differences in mast cell counts and leukocyte infiltration between the treatment and control groups.

**CONCLUSIONS:** In this rat interstitial cystitis model, tamoxifen citrate provided functional improvement. Thus, tamoxifen citrate may be an alternative choice, as easy, to other treatment options in the treatment of chronic inflammatory condition to improve deteriorated bladder function. The next step would be to investigate the role of estrogen receptors in the diseased bladders.