

LOW ENERGY SHOCK WAVE THERAPY SUPPRESSES BLADDER INFLAMMATION AND IMPROVES BLADDER FUNCTION IN A RAT CYSTITIS MODEL

Hypothesis / aims of study

To examine the effects of low energy shock wave (LESW) on bladder inflammation and hyperactivity in cyclophosphamide (CYP) induced cystitis model in rats. LESW therapy has been clinically used for improving tissue regeneration and attenuating inflammatory responses.

Study design, materials and methods

Control and experimental animals were injected with saline (N=7) or CYP (75mg/kg intraperitoneally; N=14) on day 1, and 4. After lower midline incision the bladders were explored and treated with LESW (N=7; 300 pulse, 0.12 mJ/mm²) or sham operation (N=7) on day 2. Under urethane anesthesia continuous cystometry (CMG) was performed on day 8. The bladder was then harvested for histology evaluation, and inflammatory biomarkers via using western blotting.

Results

CYP induced increased bladder inflammatory reaction (inflammatory score 162.1% increase), COX-2 expression (48.4% increase), and hyperactivity (intercontraction interval- ICI, 45.3% decrease) compared with control. LESW treatment decreased bladder inflammatory reaction (inflammatory score 30.6% reduction), COX2 expression (41.3% decrease), and suppressed bladder hyperactivity (ICI 77.8% increase) induced by CYP treatment.

Interpretation of results

CYP injection induced bladder inflammation and hyperactivity through activating COX2 expression in the bladder, which were suppressed by LESW treatment.

Concluding message

These findings suggest LESW treatment as a potential candidate for relieving bladder inflammatory conditions.

References

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Disclosures

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