

## A NEW-FOUND PROSTATE-BLADDER AXON REFLEX IN RATS - A POSSIBLE MECHANISM FOR VOIDING DYSFUNCTION ASSOCIATED WITH PROSTATITIS/PELVIC PAIN

### Hypothesis / aims of study

To demonstrate the existence of the prostate-bladder axon reflex, and to clarify a neurological mechanism for voiding dysfunction associated with chronic prostatitis/pelvic pain syndrome (CP/PPS).

### Study design, materials and methods

Experiments were performed on male adult wistar rats: 1) to register urodynamic changes of the urinary bladder induced by the stimulation of prostate with formalin. 2) to record bladder EMG evoked by electrical stimulation of prostate and to identify the prostate-bladder reflex pathway by various of superimposed interventions. 3) with double retrograde fluorescent labeling from the prostate and the bladder nerves, to evaluate the neurogenic aspect of the DRG.

### Results

Formalin stimulation of the prostate resulted in significant urodynamic changes in the urinary bladder. Electrical stimulation of prostate consistently evoked a bladder EMG response and supplementary lidocaine injection of prostate significantly prolonged the bladder EMG latency and decreased the EMG amplitude, and this block effects remained after transection of the cervical spinal cord, or even transection of the sympathetic trunk, but vanished after resection of the sympathetic trunk.

### Interpretation of results

The resection of the lumbosacral nerves root almost eliminated the reflex, suggesting the spinal cord as a vital site of the reflex. After double labeling, all the fluorescence labeled cells were exclusively found in L1-3 and L6-S3, and the presence of the double labeled cells confirmed the DRG as the primary centre of the axon reflex

### Concluding message

A prostate-bladder axon reflex was identified, and DRG neurons were shown to be the primary centre of the reflex. The finding might provide a rationale for urinary bladder dysfunction in patients with prostatitis/pelvic pain.

<b><i>Specify source of funding or grant</i></b>	<b>National Natural Science Foundation of China (No. 30500505)</b>
<b><i>Is this a clinical trial?</i></b>	<b>No</b>
<b><i>What were the subjects in the study?</i></b>	<b>ANIMAL</b>
<b><i>Were guidelines for care and use of laboratory animals followed or ethical committee approval obtained?</i></b>	<b>Yes</b>
<b><i>Name of ethics committee</i></b>	<b>Southwest Hospital Ethics Committee</b>