

## EFFECT OF URETHRAL WALL INJECTION OF REPLICATION-DEFECTIVE HERPES SIMPLEX VIRUS MEDIATED GENE TRANSFER OF KYNURENINE AMINOTRANSFERASE ON URETHRAL PRESSURE IN SPINAL CORD INJURED RATS

### Hypothesis / aims of study

We investigated that whether replication-defective herpes simplex virus vectors mediated kynurenine aminotransferase II (HSVrd -KAT II) could suppress tonic activity of urethral sphincter in spinal cord injury (SCI) rats.

### Study design, materials and methods

A total of 36 adult female Sprague-Dawley rats were used to produce spinal cord injure model. One week after spinalization, HSVrd-KAT II was injected into the urethra wall of rats and another two groups of SCI rats treated with saline and HSVrd, respectively, were used as control. Three weeks after viral injection, urethral pressure profile (UPP), continuous cystometry and gene expression in L6-S1 spinal cord were evaluated in all three groups.

### Results

In the HSV-KAT II group, the maximum urethral closure pressure(Pclo.max) and maximum voiding pressure were significantly decreased(23.6-24.9% and 31.6-30.9%, respectively), along with an increase in voiding efficiency (48.8 -76%) , compared with sham and HSVrd groups. The KAT II protein and mRNA levels were increased significantly in HSV-KA II group compared with HSVrd group.

### Interpretation of results

Results show that KAT II gene therapy effectively reduced urethral pressure, improving detrusor-sphincter dyssynergia (DSD) and detrusor overactivity (DO ) by blocking N-methyl-D-aspartate receptor(NMDAr) in L6-S1 spinal cord.

### Concluding message

Replication-defective herpes simplex virus vectors mediated kynurenine aminotransferase II (HSVrd -KAT II) could suppress tonic activity of urethral sphincter in spinal cord injury (SCI) rats.

### Disclosures

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