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Chung H S¹, Na S W¹, Cho Y H¹, Shin B S¹, Yu H S¹, Hwang E C¹, Kim S¹, Jung S I¹, Kang T W¹, Kwon D D¹, Park K¹, Cho W J²

1. Chonnam National University Medical School, Department of Urology, 2. Chosun University School of Medicine, Department of Urology

THE INCREASED EXPRESSION OF TRANSIENT RECEPTOR POTENTIAL VANILLOID-4 (TRPV4) IN CYCLOPHOSPHAMIDE-INDUCED INFLAMMATORY CYSTITIS

Hypothesis / aims of study

The purposes of this study were to investigate the effect of cyclophosphamide (CYP)-induced inflammatory cystitis on transient receptor potential vanilloid-4 (TRPV4) in rat urinary bladder and to determine the role of TRPV4 in the bladder dysfunction that occurs in inflammatory change in rat urinary bladder.

Study design, materials and methods

Female Sprague-Dawley rats were divided into control (n=30) and experimental (n=30) groups. Cystitis in experimental group was induced by intraperitoneal injection of CYP (200mg/kg). The control group underwent an intraperitoneal saline injection. After 3 days, urodynamic studies were done to measure the contraction interval and contraction pressure. The expression and cellular localization of TRPV4 was determined by Western blot and immunofluorescent study in rat urinary bladder.

Results & Interpretation of results

In cystometrograms, the contraction interval (min) was significantly lower in the CYP-induced cystitis rats (16.4 ± 2.3) than in the control group (6.5 ± 1.2) ($p < 0.05$). The average contraction pressure (mmHg) was significantly higher in the CYP-induced cystitis rats (14.9 ± 3.8) than in the control group (10.5 ± 2.5) ($p < 0.05$). TRPV4 were mainly expressed in the cytoplasm of the urothelium. The protein expression of TRPV4 was significantly increased in the CYP -induced cystitis rats ($p < 0.05$).

Concluding message

Inflammatory change of urinary bladder maybe related with a significant change in the expression of TRPV4. These findings suggest that TRPV4 might have a functional related with cystitis in rat urinary bladder.

Disclosures

Funding: NONE **Clinical Trial:** No **Subjects:** ANIMAL **Species:** Rat **Ethics Committee:** Chonnam National University Hospital Institutional Review Board