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THE EFFECT OF CHRONIC STRESS ON FEMALE RAT BLADDER STABILITY

Hypothesis / aims of study

In patients with lower urinary tract symptoms (LUTS) such as overactive bladder syndrome or painful bladder syndrome, they often complain aggravating their LUTS with events related with physical or psychological stress. Frequency, urgency, vesical tenesmus are not uncommon symptoms in this condition. In this study, we aimed to investigate the changes of bladder tissue under chronic stressful conditions and their pathophysiological correlations.

Study design, materials and methods

Subjects were twenty eight female Spraque-Dawley rats. They were divided into four groups, which were control group and three stress groups which were planned to be exposed to scheduled stress conditions for 10 to 30 days(stress-10, stress-20, stress-30). Rat bladder tissues were taken from each group and expression of Rho A/Rho-kinase were measured and analyzed by western blotting.

Results

The expression of Rho A/Rho-kinase in bladder tissue was increased in the stress group when compared with the control group ($p<0.01$). Among three stress group, the expression intensity of Rho A/Rho-kinase was positively correlated with the duration of stress exposure (stress-10<stress-20<stress-30 and $p<0.05$)

Interpretation of results

In the stress groups, bladder Rho A/Rho-kinase expressions were changed compared with the control group. Rho A/Rho-kinase is one of the important mediator of calcium channel dependent muscle contraction. Overexpression of Rho A/Rho-kinase may play a role in developing overactive bladder symptoms.

Concluding message

This study suggests that chronic stress may affect bladder stability by altering Rho A/Rho-kinase expression in the bladder tissue. Further study will be continued to find the correlation between clinical symptoms and pathological changes under chronic stressful conditions.

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