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EFFECT OF PARTIAL URETERAL OBSTRUCTION ON THE FUNCTION OF SMOOTH MUSCLE IN RATS

Hypothesis / aims of study

To analyze the effect of partial unilateral ureteral obstruction (PUUO) on the autorhythmicity and contractile function of smooth muscle in rats.

Study design, materials and methods

Eighty Wistar rats had been divided into four groups by random: 8-week experimental group (n=20) and sham control group (n=20), 16-week experimental group (n=20) and sham control group (n=20). Experimental animals' left ureters (n=40) had been embedded the upper half into the psoas muscles. Sham control rats only received laparotomy. After the establishment of models, the rats were separated in different experimental time point to carry out the experiment strip of the ureter muscle in vitro, the contraction extent and frequency of the muscle strip were determined.

Results

The ureteral contractility and contractile frequency in 8-week experimental group were (0.62 ± 0.38) g and (9.3 ± 3.4) 30s. and in the sham control group were (0.25 ± 0.59) g and (7.4 ± 2.5) 30s. There was a significant increase in the 8-week experimental group compared with sham control group ($P < 0.05$). The ureteral contractility, a. rrd contractile frequency of 16-week experimental group were (0.15 ± 0.10) g and (6.4 ± 1.7) 60s. while sham control group were (0.41 ± 0.38) g and (8.2 ± 1.7) 30s. There was a significant decrease in the 16-week experilnental group compared with sham control group($P < 0.05$).

Interpretation of results

The aulorhythmicity and contractility of smooth muscle in PUUO rats were increased at eight weeks, while decreased at sixteen weeks. The reason that the autorhythmicity and contractility of smooth muscle in 8-week model rats increased may be due to compensation.

Concluding message

The mechanism of compensation may be the key point to the uprising of the aulorhythmicity and contractility of smooth muscle in PUUO rats.

Disclosures

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