

## The immunohistochemical study of ICAM-1, neutrophil, macrophage and iNOS in the partial bladder outlet obstructed rats.

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**AIMS OF STUDY** The expression of iNOS is increased in inflammatory state. iNOS induces cytotoxic effect and causes degeneration of neurons and neuronal synapses. This study was designed for evaluating the expression of iNOS and mechanism of the expression after partial bladder outlet obstruction.

**METHODS** Thirty-two female Sprague-Dawley rats weighting 250-300gm were used. Partial bladder outlet obstruction was performed by modified Levin and Wein's method. Each bladders were obtained postoperatively 6hrs, 12hrs, 1day, 2days, 3days, 5days and 7days from partial bladder outlet obstructed rats and sham-operated rats. Immunohistochemical study was done, and the expression of ICAM-1, neutrophil, macrophage and iNOS was image analyzed by Image Pro Plus.

**RESULTS** The expression of ICAM-1 was started at 12 hours, get highest point at 1day ( $481.7 \pm 55.7/\mu\text{m}^2$ ) and decreased rapidly after 2days postoperatively. The expression of neutrophil gets highest point from postoperative 1day to 2days ( $54.6 \pm 14.2/\text{mm}^2$ ). The expression of macrophage gets highest point from 2days to 5days ( $75.5 \pm 13.5/\text{mm}^2$ ) after obstruction. There was high correlation between expression of macrophage and iNOS.

**CONCLUSIONS** This results suggest that detrusor instability and decreased contractility after partial bladder outlet obstruction is induced by neuronal damage due to increased iNOS, NO and ONOO-. And there was high correlation between expression of macrophage and iNOS.

ICAM-1 was expressed before the expression of neutrophil and macrophage, it suggest that inflammation due to ischemic condition after partial bladder outlet obstruction may play an important role in pathogenesis.

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key words partial bladder outlet obstruction, ICAM-1, iNOS