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Matsumoto S[1], Watanabe M[1], Kakizaki H[1]
1. *Department of Renal and Urologic Surgery, Asahikawa Medical University*

EFFECTS OF CHRONIC TREATMENT WITH PIRFENIDONE ON FEMALE RAT BLADDER IN A PARTIAL BLADDER OUTLET OBSTRUCTION MODEL.

Hypothesis / aims of study
To investigate whether bladder dysfunction after bladder outlet obstruction (BOO) could be altered by treatment with pirfenidone (5-methyl-1-phenyl-2-(1H)-pyridone). Pirfenidone is a novel small compound with combined antiinflammatory, antioxidant and antifibrotic effects in experimental models of pulmonary fibrosis. Pirfenidone is an antifibrotic agent and has been clinically used to improve lung fibrosis (Idiopathic Pulmonary Fibrosis) and attenuates pulmonary dysfunction in Japan.

Study design, materials and methods
12-week-old female Sprague-Dawley rats were divided into three groups; group 1, sham operated rats; group 2 and 3, BOO rats. Group 1 and 2 rats were given normal diet; group 3 rats were given pirfenidone, respectively. Pirfenidone was a kind gift from Shionogi & Co., Ltd., Osaka, Japan. Pirfenidone was mixed with food and given within pirfenidone diet from the day of surgery. In the present study, we examined a high dose (0.7% in feed), on the basis of prior report. Four weeks after BOO, the bladder was excised and dissected into four longitudinal strips for isometric organ-bath assay. Contractile responses of bladder strips to electrical field stimulation (EFS; 2, 8, 32 Hz) was determined for each group.

Results
BOO induced a significant increase in bladder weight in groups 2 and 3 compared with group 1. Pirfenidone treatment did not affect bladder weight in either sham or BOO rats. The contractile forces in response to EFS in group 3 tended to increase, but was not significantly different in group 2.

Interpretation of results
The results of the present study do not support the use of treatment with pirfenidone in this dose.

Concluding message
From the contractile forces in response to EFS tended to increase in the treatment group. Pirfenidone, an antifibrotic agent, is a possible treatment for the protection of bladder fibrosis against contractile dysfunction of the obstructed bladder, depending on dose and medication.

References
1. Nicod LP. Pirfenidone in idiopathic pulmonary fibrosis. Lancet. 1999;24;354(9175):268-9.

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