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IMPROVEMENT OF PERSISTENT OF DETRUSOR OVERACTIVITY AFTER RELIEF OF BLADDER OUTLET OBSTRUCTION MEDIATED BY ANTIOXIDATIVE EFFECT OF THE PHYTOTHERAPEUTIC AGENT

Hypothesis / aims of study

Storage symptoms do not often improved in the patient with benign prostatic hyperplasia (BPH) even after relieving bladder outlet obstruction (BOO) induced by BPH. Therefore, new treatment approach is necessary. A recent review suggested that oxidative stress was an important factor to lead functional and molecular changes of bladder induced by BOO. Previous studies introduced that the empirically-used herbs in various diseases had antioxidative effect and some of the phytotherapeutic agents showed effect in the urologic diseases. Therefore, we studied about the antioxidative effect of the herbal agent on persistent detrusor overactivity (DO) after relieving BOO.

Study design, materials and methods

Female rats were assigned as 3 groups; control (n=6), persistent DO (n=6), and persistent DO treated with the herbal agent (n=6) groups. Persistent DO after relief of partial BOO was made and 6 of them were orally administered with the herbal agent made following empirically-used remedy in Korea. After 4 weeks administration, cystometrography (CMG) was performed. And then 8-hydroxy-2-deoxyguanosine (8-OHdG) and superoxide dismutase (SOD) were measured for the evaluation of oxidative stress in the bladder. Interleukin-8 (IL-8), tumor necrosis factor- α (TNF- α), and muscarinic receptors (M2 and M3 subtypes) were analysed in the bladder.

Results

Significantly increased contraction pressure and decreased contraction interval were observed in persistent DO group after relief of BOO was observed. Moreover, significantly increased 8-OHdG and decreased SOD were observed in the bladder. IL-8, TNF- α , and M3 muscarinic receptor were significantly increased. After treatment with the herbal agent, significantly reduced DO by CMG was observed compared with persistent DO group. Additionally, significantly decreased level of 8-OHdG, IL-8, TNF- α , and M3 muscarinic receptor in the bladder were observed after treatment with the plant combination.

Interpretation of results

Persistent DO was noted from the findings of CMG after relief of BOO. Oxidative stress and pro-inflammatory cytokines were significantly increased in the persistent DO group. Moreover, M3 muscarinic receptor was significantly increased. After treatment with the herbal agent, significantly reduced DO by CMG was observed compared with the persistent DO group. Additionally, significantly decreased oxidative stress, pro-inflammatory cytokines, and M3 muscarinic receptor in the bladder were observed after treatment.

Concluding message

Treatment with the herbal agent improves persistent DO after relief of BOO mediated by antioxidative and anti-inflammatory effect. As the preliminary effect was noted, further study is necessary to identify the underlying mechanism about how the herbal agent acts.

References

1. Int J Urol 2015;22:40–46

Disclosures

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