

Editorial Comment

Editorial Comment to Effect of propiverine hydrochloride on stress urinary incontinence

Stress urinary incontinence (SUI) is the most common cause of urine leakage, accounting for roughly half of incontinence in women.¹ Because the prevalence of SUI is greatest among the elderly, it is important for elderly patients to manage therapeutic risks. Even though minimally-invasive surgical techniques and devices have been recently developed, surgical intervention is not without risks. It is true that SUI is not a life threatening condition, but the fear of urine leakage can cause a decline in quality of life. Non-invasive SUI treatments are much-anticipated therapy in a super-graying society. However, SUI cannot be easily treated with pharmacotherapy, as it is essentially an age-related anatomical change. The present article describes a study evaluating the effect of propiverine hydrochloride for patients with SUI.

Propiverine hydrochloride was developed in Germany in 1985,² and has been characterized as an antimuscarinic agent that also has a calcium antagonistic action.³ Some clinical studies suggest that propiverine hydrochloride might improve overactive as well as mixed urinary incontinence and SUI symptoms, although they did not specifically examine the effect of propiverine hydrochloride on SUI.⁴ As mentioned by Sugaya *et al.*, many urologists might not believe in the effect of propiverine hydrochloride on SUI.⁵ The cause of this might be the precise mechanism possibly involved in this pharmacological action remains largely unknown.

What is the mechanism of action of propiverine hydrochloride? This is one of the most essential points of the present study. Recently, another group showed the increase of urethral base pressure as well as leak point pressure during passive intravesical pressure elevation using another SUI rat model.⁶ Plasma catecholamine levels in the propiverine hydrochloride-treated group were significantly higher than those in the vehicle group. Furthermore, other anticholinergic drugs have not been reported to have such effects. Sugaya *et al.* speculated that the anti-SUI effects were as a result of the inhibition of noradrenaline reuptake, which increased urethral smooth muscle contraction and also increased activation of the pudendal nerve controlling the external urethral sphincter from the spinal cord. These mechanisms were similar to the effect of serotonin and norepinephrine reuptake inhibitors for the treatment of SUI. Neither the effects on the spinal cord nor on the supraspinal site are fully understood. Further studies are

required to clarify the action on the central nervous system of this unique anticholinergic drug.

In real life, SUI patients might be checked by a general practitioner. In some patients were not classified as SUI but classified as urge urinary incontinence, and “unfortunately” prescribed anticholinergic drugs as urge urinary incontinence. Propiverine hydrochloride could be beneficial for patients with pure SUI.

The number of patients in the present study was small. Randomized controlled trials of the efficacy and safety of propiverine hydrochloride for SUI patients are required in the future. I hope that the current study might bring a new therapeutic option to patients with SUI.

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Conflict of interest

None declared.

References

- 1 Hannestad YS, Rortveit G, Sandvik H, Hunskaar S. Norwegian EPINCONT study. Epidemiology of Incontinence in the County of Nord-Trøndelag. A community-based epidemiological survey of female urinary incontinence: the Norwegian EPINCONT study. *Epidemiology of Incontinence in the County of Nord-Trøndelag. J. Clin. Epidemiol.* 2000; **53**: 1150–7.
- 2 Dorschner W, Jacob J, Hofner K *et al.* Die Wirkung des Anticholinergikums Mictonorm auf den unteren Harntrakt. *Klinische Wirkungen-Untersuchungen zur Ermittlung der Indikation, Dt Gesundh Wesen* 1982; **37**: 950–3. (In German.)
- 3 Tokuno H, Chowdhury JU, Tomita T. Inhibitory effects of propiverine on rat and guinea-pig urinary bladder muscle. *Naunyn Schmiedebergs Arch. Pharmacol.* 1993; **348**: 659–62.
- 4 Dorschner W, Stolzenburg JU, Griebenow R *et al.* Efficacy and cardiac safety of propiverine in elderly patients – a double-blind, placebo-controlled clinical study. *Eur. Urol.* 2000; **37**: 702–8.
- 5 Sugaya K, Sekiguchi Y, Satoh T *et al.* Effect of propiverine hydrochloride on stress urinary incontinence. *Int. J. Urol.* 2014; **21**: 1022–5.
- 6 Kitta T, Tyagi V, Nanri M, Kiniwa M, Nonomura K, Yoshimura N. Effects of propiverine hydrochloride, an anticholinergic agent, on urethral continence mechanisms and plasma catecholamine concentration in rats. *Int. Urogynecol. J.* 2013; **24**: 683–8.