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TREATMENT FOR BLADDER OVERACTIVITY WITH MILNACIPRAN HYDROCHLORIDE

Hypothesis / aims of study

Detrusor overactivity followed by central nervous system dysfunction is caused by spinal-brainstem-spinal over-reflex. Impulses after stimulation of bladder ascend through the afferent axons to the pontine micturition center (PMC) in dorsal lesion of pons. Then the signals feed back to the bladder and spincter and prompt to urination. Raphe nuclei exist in the ventral region of PMC. Electrical or chemical stimulation of the raphe nuclei in the cat inhibited reflex bladder activity, indicating that endogenously released 5-HT has an inhibitory effect on bladder function. Given the condition is the same in humans, we established a hypothesis that serotonin-noradrenalin reuptake inhibitor (SNRI) might improve urgency incontinence.

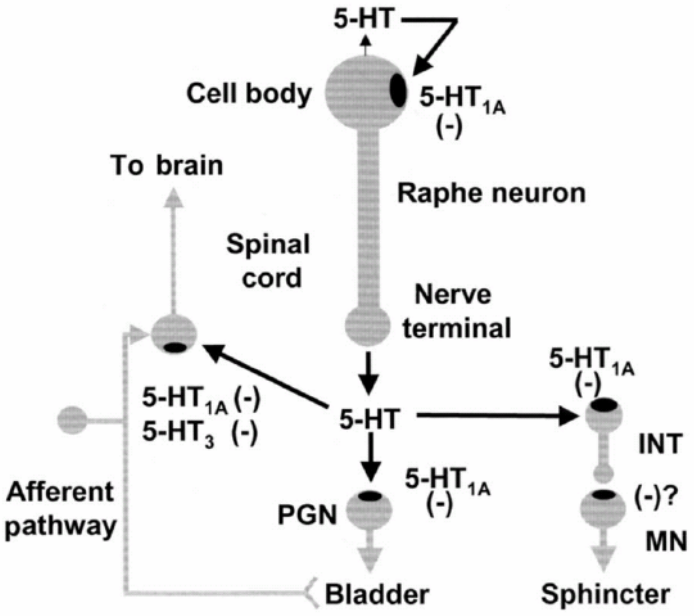

Fig.1 Serotonergic pathways controlling bladder function in the cat. Raphe neurons promote urine storage by enhancing sphincter activity and depressing bladder activity.

Study design, materials and methods

We prescribed milnacipran hydrochloride (SNRI) 100 mg/day to 5 urge incontinent patients (3 men, 2 women). The underlying causes were diverse (Parkinson disease, myasthenia gravis, Machado-Joseph disease, and cerebral infarction). Urodynamic study was performed before and three months after treatment with milnacipran hydrochloride, and we evaluated its clinical effect on the urge incontinence.

Results

Before treatment, all 5 patients were suffered from urinary incontinence (every day (2), more than once a week (2), more than once a month (1)). Average daytime frequency of urination was 10.2 times; average nighttime frequency of urination, 2.8 times; average bladder capacity, 188.0 ml; average voided volume, 159.8 ml. After treatment, all the parameters were improved. Four patients were suffered from urinary incontinence (every day (0), more than

once a week (3), more than once a month (1)). Urinary incontinence was disappeared in a patient. The average daytime frequency became 8.8 times; nighttime frequency, 2.3 times; average bladder capacity, 323.6 ml($p<0.05$); voided volume, 208.0 ml.

Interpretation of results

After treatment with milnacipran hydrochloride, most of the urodynamic parameters and patients' symptoms were successfully improved.

Concluding message

Milnacipran hydrochloride is useful in the treatment of urge incontinence. It is suggested that brain serotonin might suppress bladder (over)activity not only in cats but also in human.

Reference

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