Effects of Tamsulosin in Neurogenic Voiding Dysfunction in Rat Model

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INTRODUCTION

◆ α1 AR antagonists were also used for voiding dysfunctions of neurogenic origin empirically.

◆We are to investigate the effects of tamsulosin on the neurogenic voiding dysfunction in regard to peripheral bladder function and central micturition area using intracerebral hemorrhage (ICH) induced rat model.

MATERIALS & METHODS

◆ *Animals* : Female Sprague-Dawley rats (10 weeks; 260 ± 10 g)

A. Sham-operation group (n = 10)

B. ICH-induced group (n = 10)

C. ICH-induced and 0.01mg/kg tamsulosin treated group (n = 10)

D. ICH-induced and 0.1mg/kg tamsulosin treated group (n = 10)

E. ICH-induced and 1mg/kg tamsulosin treated group (n = 10)

◆ *Induction of ICH*

•For the induction of hemorrhage in the hippocampal CA1 region, the rats placed in a stereotaxic frame.

•Though a hole drilled in the skull, a 26-gauge needle was implanted into the hippocampal CA1 region at the following coordinates: 2.4 mm lateral to the midline, 4.2 mm anterior to the coronal suture, and depth 2.4 mm deep from the surface of brain.

•ICH-induced and sham-groups received 2μl collagenase solution (containing 0.2 U/μl of Type IV collagenase) and 2μl physiological saline, respectively.

Fig. 1. Intracerebral hemorrhage-induction operation

◆ *Cystometry*

• The bladder function was tested using a cystometry.

• The rats were tested in a cystometry 14 days after first treatment of tamsulosin.

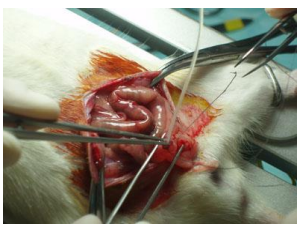


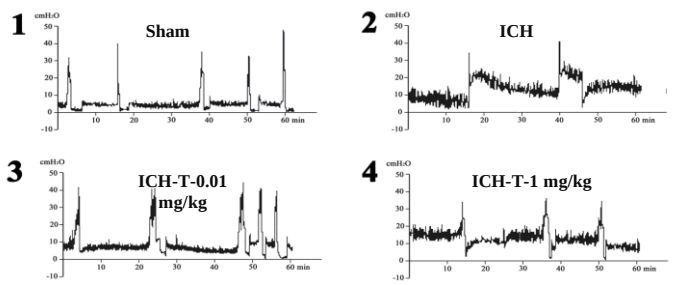
Fig. 2.

Fig. 3.

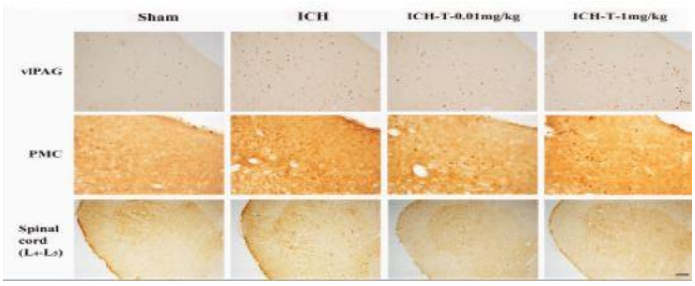
◆ *Data analysis – Immunohistochemistry (c-Fos & NGF)*

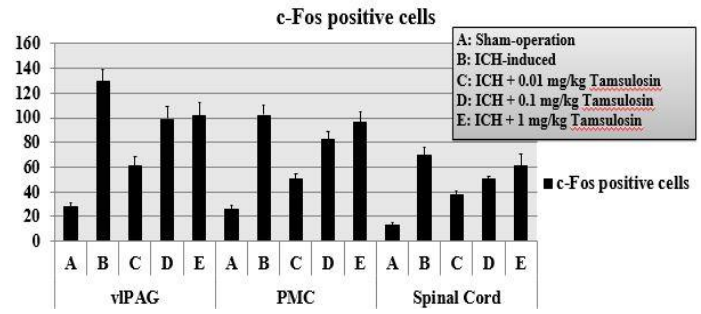
RESULTS

◆ *Effects of tamsulosin on bladder function in cystometry*

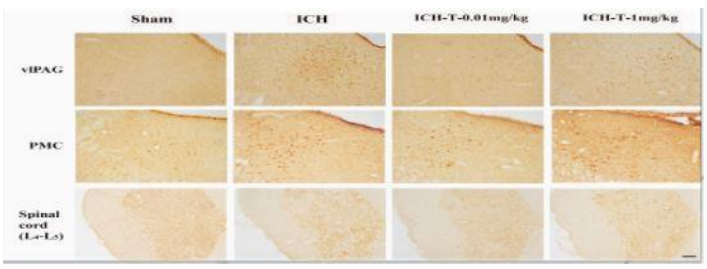


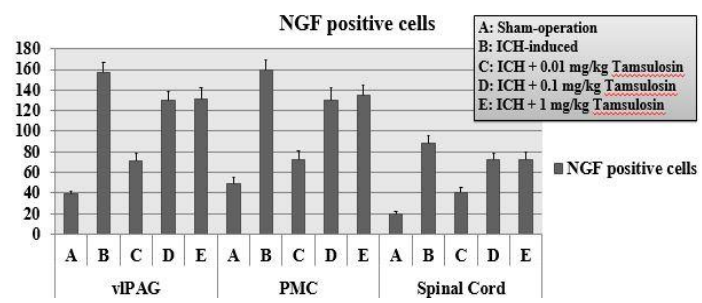
◆ *Effects of tamsulosin on c-Fos expressions in the micturition centers*





◆ *Effects of tamsulosin on NGF expression in the micturition centers*





CONCLUSION

◆Tamsulosin exerts inhibitory effect on neuronal activation in the neuronal voiding centers of ICH.

◆The present results suggest the possibility that tamsulosin is effective therapeutic modality for ameliorating the symptoms of ICH.

Disclosures Statement

I have no relevant financial relationships to disclose.