

## THE USEFULNESS OF THE ICE-WATERT TEST IN THE PATIENT WITH SYMPTOMATIC BPH ASSOCIATED WITH OVERACTIVE BLADDER

### Hypothesis / aims of study

Overactive bladder(OAB) is caused by central or spinal neurogenic disorder and/or associated with BPH. Subclinical brain lesions were also revealed by MRI screening in the elderly males with irritative bladder symptoms and no history of cerebrovascular accident episode or neurologic deficits[1]. This report demonstrated that improved imaging of CNS could reveal neurogenic lesion in the patient with overactive bladder without demonstrated neurogenic lesion. Therefore it is very important to differentiate between bladder outlet obstruction(BOO) and/or neurogenic detrusor overactivity(DO) in the patient with symptomatic BPH associated with overactive bladder. The video-urodynamic study is known as accurate test in the diagnosis of bladder outlet obstruction. The ice-water test is traditionally used as screening test for neurogenic bladder. To evaluate the usefulness of the ice-water test in the patient with symptomatic BPH with OAB we performed the brain MRI, video-urodynamic study and ice-water test in the patient with symptomatic BPH with OAB.

### Study design, materials and methods

The video-urodynamic study using 10Fr triple urodynamic catheter was performed in 82 patients with urgency, urge incontinence, frequency, weak stream, nocturia with more than 30cc of prostate on transrectal ultrasonography and no clinical neurologic deficit and no history of cerebrovascular accident episode. We defined the patient had bladder outlet obstruction if he had PdetQmax -2Qmax>40. After the video-urodynamic study the ice-water was performed by instilling 4°C sterilized water through a catheter at non-physiological filling rate with supine position. The volume instilled was about 30% of urodynamic bladder capacity. The ice-water test was positive if there was an efflux of water around the catheter during or after water instillation. Brain MRI was performed in all the patients who were involved in this study. High intensity signal MRI lesions identified on T2-weighted and proton density weighted images were regarded as cerebral ischemic lesions due to chronic cerebrovascular disease

### Results

Sixty four patients out of 82 symptomatic BPH with OAB was negative on the ice-water test. All of 64 patients who have negative ice-water test was bladder outlet obstruction(BOO) with detrusor overactivity(DO). Eighteen patients out of 82 symptomatic BPH with OAB were positive on the ice-water test. Twelve out of 18 patients who had positive ice-water test were BOO with DO and the other 6 patients were DO only on video-urodynamic study. Six out of 12 (50%) patients who were BOO with DO on the video-urodynamic study and positive ice-water test and 5 out of 6(83%) patients who were DO only on the video-urodynamic study and positive ice-water test showed positive brain lesions on MRI. However, only 3 out of 64 (4.5%) patients who were BOO with DO on video-urodynamic study and negative ice-water test showed positive brain lesions on MRI(Table1).

Table 1. Results of the ice-water test, video-urodynamic study and brain MRI in 82 patients.

Video-urodynamic study	Positive	Ice-water test		Negative
		Positive on MRI		
BOO with DO	12	6/12	3/64	64
DO only	6	5/6		0

### Interpretation of results

This study show that in case of positive ice-water test in the patient with symptomatic BPH with OAB the video-urodynamic study is needed to differentiate between BOO with DO and DO only. In addition, brain MRI is needed to check the subclinical brain lesion in the patient with positive ice-water test. Moreover, ice-water test positive BOO with DO may explain the unpredictable result of TURP.

### Concluding message

The ice-water test is a safe and easy screening method to improve the diagnostic precision in the patient with symptomatic BPH with OAB

### References

1. J.Urol 1992;147:1507-1509

<b>Specify source of funding or grant</b>	none
<b>Is this a clinical trial?</b>	Yes
<b>Is this study registered in a public clinical trials registry?</b>	No
<b>Is this a Randomised Controlled Trial (RCT)?</b>	No
<b>What were the subjects in the study?</b>	HUMAN
<b>Was this study approved by an ethics committee?</b>	Yes
<b>Specify Name of Ethics Committee</b>	IRB of Kangdong Sacred Heart Hospital
<b>Was the Declaration of Helsinki followed?</b>	Yes
<b>Was informed consent obtained from the patients?</b>	Yes