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THE USEFULNESS OF ICE-WATER TEST IN THE PATIENTS WITH SYMPTOMATIC BPH ASSOCIATED WITH OVERACTIVE BLADDER

Hypothesis / aims of study

Overactive bladder is caused by central or spinal neurogenic disorder and associated with BPH. Subclinical brain lesion were also revealed by MRI screening in the elderly males with irritative bladder symptoms and no episode of cerebrovascular accident or neurogenic deficits[1]. This report indicated that improved imaging of CNS in the future will reveal neurologic lesion in the patient with overactive bladder without demonstrated neurologic lesion.Therefore it is very important to differentiate between bladder outlet obstruction and detrusor instability in the patient with symptomatic BPH associated with overactive bladder. The video-urodynamic study is known as accurate test to differentiate two groups. However, the video-urodynamic study needs expensive equipment and well trained technique so not commonly available. We performed the video-urodynamic study and ice-water test which is traditionally used to diagnose the neurogenic bladder in the patients with symptomatic BPH associated with overactive bladder and compared the results.

Study design, materials and methods

The video-urodynamic study using 10-Fr triple lumen urodynamic catheter was performed in 36 patients with symptomatic BPH associated with overactive bladder who had frequency, weak stream, nocturia, urgency, urge incontinence, painful urination and no clinical neurogenic deficit. The patients who had higher intravesical pressure(Pves) than external sphincteric pressure(Pura) at the time of urine leakage were diagnosed as BPH with overactive bladder(Fig.1). The patients who had higher external sphincteric pressure(Pura) than intravesical pressure(Pves) or same external sphincteric pressure(Pura) as intravesical pressure(Pves) at the time of urine leakage were diagnosed as overactive bladder only(Fig. 2, 3). After video-urodynamic study the ice-water test were 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 bladder capacity. The ice-water test was positive if there was efflux of water around the catheter during or after water instillation.

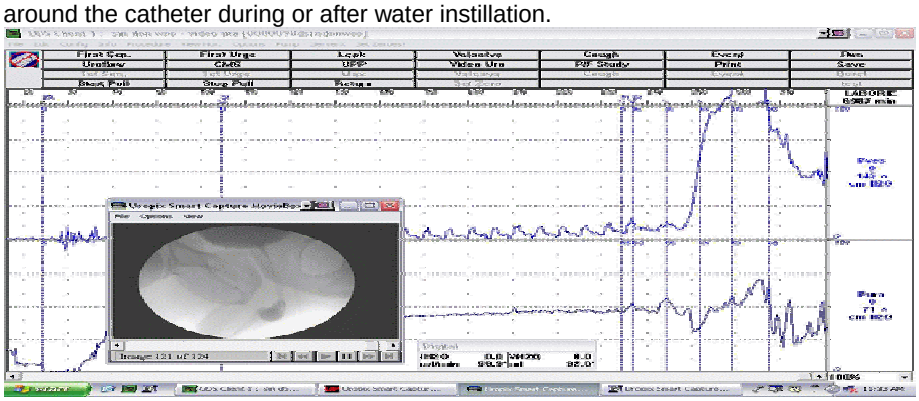

Fig. 1. The video-urodynamic finding of BPH with overactive bladder. The intravesical pressure (P_{ves}) is higher than external sphincteric pressure (P_{ura}) at the time of urine leakage. The narrow and elongated prostatic urethra is visible in fluoroscopy.

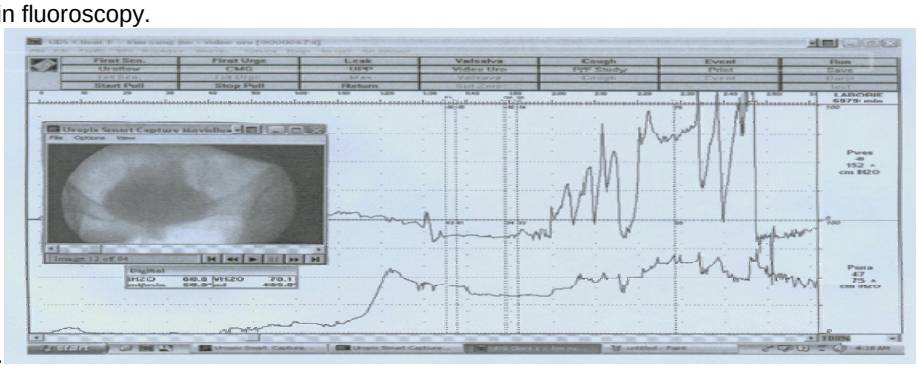

Fig. 2. The video-urodynamic finding of overactive bladder with DSD only. The external sphincteric pressure (P_{ura}) is higher than the intravesical pressure (P_{ves}) at the time of urine leakage. Bladder neck is open and the site of obstruction is the external sphincter in fluoroscopy

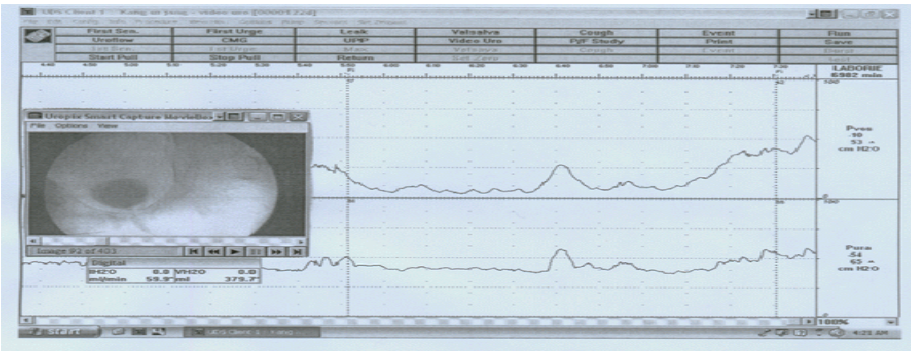

Fig. 3. The video-urodynamic finding of overactive bladder without DSD only. The external sphincteric pressure (P_{ura}) and the intravesical pressure (P_{ves}) is the same at the time of urine leakage. The bladder neck is open and there is no obstruction site in fluoroscopy.

Results

Thirty two patients out of 36 symptomatic BPH with overactive bladder was negative on the ice-water test. All of 32 patients who had negative ice-water test were BPH with overactive bladder on the video-urodynamic study. Four patients out of 36 symptomatic BPH with overactive bladder were positive on the ice-water test. Two of 4 patients who had positive ice-water test were BPH with overactive bladder and the other two patients were OAB only on the video-urodynamic study(Table 1).

Table 1. Results of the ice-water test and video-urodynamic study in 36 patients

Video-urodynamic study findings	ice-water test	
	positive	negative
BPH with OAB	2	32
OAB only	2	0
No. of patients	4	32

Interpretation of results

In case of positive ice-water test the video-urodynamic study is needed to differentiate between BPH with overactive bladder and OAB only in the patients with symptomatic BPH with overactive bladder to choose appropriate treatment modality. Moreover, ice-water positive BPH with overactive bladder may explain the unpredictive effect of TURP.

Concluding message

Ice-water test is a safe and easy screening method to improve diagnostic precision in the patients with symptomatic BPH associated with overactive bladder.

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

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