International Continence Society August 22-26, 1999 29th Annual Meeting Denver, Colorado USA

Category No. 4 | Video Demonstration | Ref. No. 339

Abstract Reproduction Form B-1

Author(s): T.Uchiyama, R Sakakibara, T Hattori and *T Yamanisi

Double Spacing

Institution City Country: Departments of Neurology and *Urology
Chiba University, Japan

Double Spacing

Title (type in CAPITAL LETTERS): IS WATT FACTOR INFLUENCED BY DIAMETER OF THE CATHETER?

Objectives

Watt Factor(WF) is thought to reflect detrusor contractility. This theory is based on globe model that imitates the bladder, and loss of energy in the urethra is not considered. However, calculation of WF includes a parameter: flow rate (Q), which may also depend on the urethral resistance and diameter. We tried to evaluate as to whether WF is influenced by diameter of the catheter used in pressure flow study.

Patients and Methods

We recruited 21 patients with voiding dysfunction, including 12 males and 9 females. We performed pressure-flow study and calculated WFmax with 10+4Fr double catheter and 4Fr catheter (after removal of 10Fr catheter). Seven of the patients, including 4 males and 3 females, also underwent the test with another 8Fr catheter. 5 patients had detrusor sphincter dyssynergia. We also measured residual urine volume in all patients.

Results

WFmax and maximum detrusor pressure had no significant change between 10+4Fr and 4Fr catheter. Residual urine volume under 4Fr catheter was significantly smaller than that under 10+4Fr. ($P<0.05$) Maximum flow late under 4Fr was significantly larger than those under 10+4Fr. ($P<0.01$) Detrusor opening pressure and detrusor pressure at maximum flow under 4Fr were significantly smaller than that under 10+4Fr. ($P<0.01$) In particular, maximum flow rate was negatively related with detrusor pressure at maximum flow. These changes were not influenced by the presence of DSD and sex. WFmax had no significant difference between 4Fr and 8Fr catheters, and between 10+4Fr and 8Fr catheters. The other parameters also were similar change with those between 10+4Fr and 4Fr catheter.

Conclusion

The results showed that the difference of catheter size did not affected WFmax, but affected residual urine volume and the other parameters. It was assumed that the influence of catheter diameter to WFmax was partly compensated by the expansion of urethral diameter, or that WFmax were comparably correct to represent detrusor energy without affecting catheter diameter. Maximum flow rate was negatively related with detrusor pressure at maximum flow, suggesting that the energy produced by detrusor on voiding was constant without affecting catheter diameter and the energy was partitioned to flow and detrusor pressure (similar with Hill's theory). So WFmax were seemed to be independent from the diameter of catheters. As for measurement of residual urine volume with catheter through urethra, smaller diameter of the catheter should be performed.