#172 Modified Condom catheter test for non-invasive measurement of isovolumetric bladder pressure in obstructed male patients: A pilot study.

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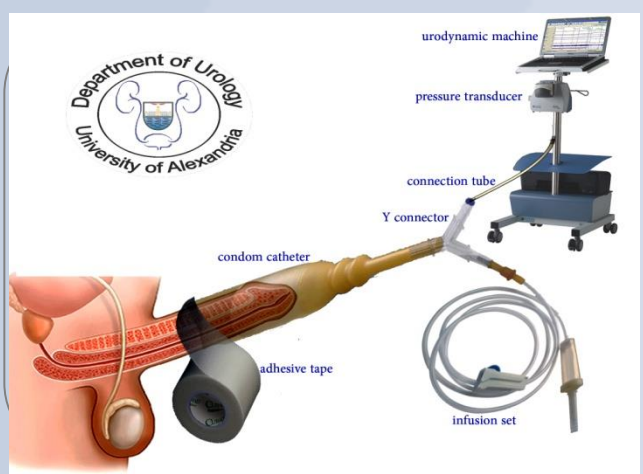
ABSTRACT

This prototype of modified condom catheter test aims to make it simpler and faster to reach isovolumetric pressure.
We tested this prototype for measurement of transmitted isovolumetric pressure and compare it with invasive isovolumetric pressure using the manual penile compression test (Pinch test) in obstructed male patients in 29 male patients with obstructive symptoms due to prostatic enlargement.

METHODS

We used a single outflow condom catheter attached to the penis with a y-shaped connector attached to it. One limb of the Y was attached to pressure transducer and the other limb was used to make the condom air free to avoid artifacts during pressure measurement then was blocked. The condom was stiffened with adhesive tape to lower its compliance and limit its distensibility to maximal capacity of 70-120 ml. The tape was extended to the penile skin to guard against leakage. The patients were instructed not to strain during voiding and we excluded results associated with any straining. Maximal recorded pressure was designated as Transmitted Isovolumetric pressure. Pressure-flow test was done in another day with interruption of flow during voiding using manual compression of the penis (Pinch test). Isovolumetric pressure was recorded and compared with transmitted isovolumetric pressure of modified condom test. Statistical analysis was done using Bland-Altman method to test for agreement between both tests and Shapiro-Wilk test for difference between both tests.



RESULTS

Mean patients age was 64.1 +/-7.5 years. Median IPSS sore was 22 (range 15-30). Mean bladder volume was 347+/-121 ml. Free flow showed mean Qmax of 8.4+/-2.7 ml/sec. Mean transmitted isovolumetric pressure was106.8 +/-31 cm/H2O. Mean invasive isovolumetric pressure was 103.7+/-30 cm/H2O. No significant difference in distribution between both pressures was found using Shapiro-Wilk test (p=0.22 6).

No significant difference was found between modified condom catheter test and invasive stop-flow test in obstructed adult male patients.

This may be due to faster filling of the condom and quicker pressurization in those patients with low flow.

CONCLUSIONS

Modified condom catheter showed a good correlation between isovolumetric bladder pressure measured both invasively and non-invasively in obstructed male patients. A further study in larger cohort of patients is still required.