

VOIDING DIARY CAN SERVE AS THE PRIMARY TOOL TO DIFFERENTIATE INTERSTITIAL CYSTITIS FROM IDIOPATHIC OVERACTIVE BLADDER

Hypothesis / aims of study

Interstitial cystitis (IC) and overactive bladder (OAB) have many similar and overlapping symptoms. Therefore it is difficult for clinicians to differentiate them from each other. The aim of this study was to identify the characteristics of 3-day voiding diary in the patients with IC and with idiopathic OAB.

Study design, materials and methods

Voiding diary is a useful and easily patient self-completed diagnostic tool applied for objectively reproducing patients' voiding symptoms. 3-day voiding diary seemed to be most commonly proposed in consideration of accuracy of voiding diary as well as the patients' burden of recording [1]. Prospectively collected 3-day voiding diaries in 49 consecutive IC patients and 301 idiopathic OAB subjects at outpatient clinic between September 2005 and June 2010 were analyzed retrospectively. All patients had been diagnosed and grouped into either IC or idiopathic OAB based on the International Continence Society classification [2].

Results

Mean age of 350 enrolled patients was 60.8 ± 12.5 (SD) years old (98 males and 252 females). Of them, there were 301 OAB and 49 IC. The demographics in two groups including mean age, sex ratio, median duration of voiding symptoms, and major comorbidities were not statistically different. All other voiding variables with volumes and frequencies were significantly different except for the total voided volumes. Patients with IC significantly showed higher voided frequencies, smaller maximal and mean voided volume, and smaller ranges of voided volume than those in OAB ($p < 0.005$). With regard to the voiding intervals, the IC patients had smaller, shorter, and more constant ranges of voiding intervals during daytime and nighttime ($p < 0.001$), except for the nighttime mean ranges of voiding intervals. The mean range of nighttime voiding intervals between two groups was not statistically different comparing to that of the statistically different daytime voiding intervals (daytime, $p = 0.002$; nighttime, $p = 0.978$). The logistic regression analysis showed that the total nighttime frequency, maximal nighttime voided volume, and mean variance of daytime voiding intervals were the three importantly distinctive voiding variables between two groups ($p < 0.03$, Table 1).

Interpretation of results

Patients with IC void more frequently with shorter interval, with constantly smaller volume, and with narrower range of changing voided volume than with OAB. The nighttime voiding variables except for the range of voiding intervals for IC group were statistically different from those of the OAB group, demonstrating that the voiding mechanisms of two groups were different due to different pathophysiology. For both groups, the nighttime voided range, volume, and voiding intervals are larger compared to those observed during the day. As for the range of voiding interval of both groups, the nighttime is not significantly different comparing to the daytime. This is hypothetically explained by that the perceptively urgent and painful threshold increased for voiding sufficient to wake an individual up from sleep and the perceptive sensory to pain decreased in the nighttime during sleep. Urgent bladder pain in IC patients is increased exponentially relative to the increasing bladder volume, whereas urgency in OAB patients has a phasic pattern and is not exponentially related to increasing bladder volume. After tolerating the urgent moment, these OAB patients are able to continue to sleep until the bladder is fully distended so that they feel the normal desire to void and wake from their sleep [3]. Finally, the significant voiding variables in 3-day voiding diary are the total nighttime frequency, maximal nighttime voided volume, and mean variance of daytime voiding intervals after calibrating all other variables.

Concluding message

Our study involving voiding diary demonstrated that voiding characteristics for the IC and OAB patients were significantly different in the 3-day voiding diary, so that it might help for clinicians to differentiate diagnosing from both diseases with other diagnostic tools in outpatient-based clinical settings.

Table 1. Stepwise multiple logistic regression

Variables	Adjusted OR (95% C.I)	p-value
Total nighttime voiding frequency	1.11 (1.011-1.218)	0.0288
Maximal nighttime voided volume	0.992 (0.988-0.997)	0.0007
Mean range of daytime voiding interval	0.974 (0.961-0.986)	<.0001

Statistically significant under the p-value less than 0.05

OR: odds ratio

C.I: confidence interval

Disclosures

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