Age-specific Prevalence and Comparisons of Urodynamics and Bladder Diary between Overactive Bladder-wet and -dry Women Based on Bladder Diary

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ABSTRACT

Hypothesis / aims of study

The knowledge of age-specific prevalence of overactive bladder syndrome (OAB)-wet and –dry women is important for understanding the impact of aging on OAB. Thus, our aim is to describe clinical differences between OAB-wet and –dry women.

Interpretation of results

Age more than 65 year-old is usually defined as old age. OAB associated variables deteriorated with aging, especially after 64-year-old. Thus, it is prudent to assess old age women with OAB whether having concomitant urgency incontinenece. In addition, poor urethral sphincter function might play a role in the pathophysiology of OAB-wet.

METHODS

Between July 2009 and January 2018, all women with OAB visiting a medical center for evaluation were reviewed. The classification of OAB-wet or OAB-dry is based on the record of three-day bladder diary of each patient. The diagnosis of OAB in each patient was based on the presence of at least one episode of urgency in her three-day bladder diary and with the absence of stress urinary incontinence. The presence of at least one episode of urgency associated incontinence was defined to be OAB-wet, otherwise, OAB-dry.

RESULTS

A total of 1,071 women with OAB, including 203 (19.0%) OAB-wet and 868 (81.0%) OAB-dry women were included in this study. There was a trend of an increase in the rate of OAB-wet with aging, especially after the age period of 61-70 (Table 1).

Receiver operating characteristic curve analysis revealed age ≥ 64 year-old is an optimal cut-off value to predict OAB-wet (sensitivity = 52.2%, specificity = 68.0%; area = 0.61, 95% CI = 0.56 to 0.65). The rates of OAB-wet in women < 64 year-old and ≥ 64 year-old were 14.1% (97/687) and 27.6% (106/384), respectively (P < 0.001).

In addition, OAB-wet was associated with a higher Overactive Bladder Symptom Scores (OABSS), Urgency Severity Scales (USS), Urogenital Distress Inventory (UDI-6) score, pad weight and urgency episodes; and a lower maximum urethral closure pressure (MUCP) and daytime frequency episodes, compared with OAB-dry (Table 2).

Besides, OAB associated variables, such as OABSS, USS and UDI-6, voided volume, the volume at strong desire to void and nocturia episodes, deteriorated with aging (Table 2).

CONCLUSIONS

The rate of OAB-wet is significantly increased after age ≥ 64 year-old. It is prudent to assess old age OAB women whether having concomitant urgency incontinence or not.

Table 1. Age-specific prevalence of women with overactive bladder syndrome (n = 1,071)

Variables	Total	20-30	31-40	41-50	51-60	61-70	71-80	>81	P†
OAB-dry	868 (81)	24 (86)	73 (85)	142 (87)	266 (86)	224 (79)	112 (69)	27 (71)	<0.001
OAB-wet	203 (19)	4 (14)	13 (15)	21 (13)	45 (14)	58 (21)	51 (31)	11 (29)	

Data are presented with number (percentage).
OAB = overactive bladder.
†Chi-2 test.

Table 2. The impact of aging on clinical variables of female overactive bladder syndromes (n = 1,071)

Variables	OAB-dry (n = 868)	OAB-wet (n = 203)	P†	Coefficient of OAB-wet‡	P‡	Coefficient of age§	P§
Age	57.4±12.9	61.9±13.1	<0.001	-	-	-	-
Parity	2.5±1.4	2.8±1.4	<0.001	-	-	-	-
OABSS	6.8±2.8	9.0±3.3	<0.001	2.0 (1.5, 2.4)	<0.001	0.05 (0.03, 0.07)	<0.001
USS	1.9±1.0	2.3±1.1	<0.001	0.3 (0.2, 0.50	<0.001	0.02 (0.01, 0.02)	<0.001
UDI-6	5.9±3.2	7.5±3.5	<0.001	1.4 (0.8, 2.0)	<0.001	0.03 (0.01, 0.05)	0.002
IIQ-7	7.1±5.4	8.0±5.4	0.02	0.9 (-0.0, 1.8)	0.06	0.00 (-0.03, 0.04)	0.63
Pad weight (g)	15.1±31.6	25.3±38.4	<0.001	8.3 (3.3, 13.3)	0.001	0.4 (0.3, 0.6)	<0.001
Qmax (mL/s)	19.0±8.9	19.2±9.7	<0.001	0.7 (-0.7, 2.1)	0.30	-0.1 (-0.2, -0.1)	<0.001
VV (mL)	259±122	242±128	0.06	-7.3 (-26.0, 11.3)	0.44	-2.2 (-2.9, -1.5)	<0.001
PVR (mL)	43±40	44±41	0.74	-0.8 (-7.0, 5.4)	0.80	0.1 (-0.1, 0.4)	0.23
SD (mL)	235±57	228±60	0.14	-4.9 (-13.8, 4.0)	0.28	-0.4 (-0.8, -0.1)	0.009
PdetQmax (cmH2O)	29.4±18.2	27.6±18.9	0.10	-0.4 (-3.2, 2.4)	0.78	-0.3 (-0.4, -0.1)	<0.001
MUCP (cmH2O)	68.6±34.0	58.5±32.5	<0.001	-4.7 (-9.4, -0.1)	0.045	-1.2 (-1.4, -1.1)	<0.001
Daytime frequency	30.0±14.3	27.4±10.1	0.03	-2.3 (-4.4, -0.2)	0.04	-0.07 (-0.14, 0.01)	0.10
Nocturia episodes	5.5±4.3	5.4±4.0	0.84	-0.3 (-1.0, 0.3)	0.35	0.04 (0.02, 0.07)	<0.001
Urgency episodes	10.8±11.8	13.4±10.3	<0.001	2.4 (0.6, 4.1)	0.009	0.06 (-0.01, 0.13)	0.08
Incontinence episodes	0.0±0.4	4.8±6.2	<0.001	4.7 (4.2, 5.1)	<0.001	0.05 (0.03, 0.06)	<0.001

Data are presented with number (percentage) or mean ± standard deviation.
IIQ-7 = Incontinence Impact Questionnaire. MUCP = maximum urethral closure pressure. OAB = overactive bladder. OABSS = Overactive Bladder Symptoms Scores. PdetQmax = detrusor pressure at maximum flow rate. PVR = post-void residual. Qmax = maximum flow rate. SD = the volume at strong desire to void. SUI = stress urinary incontinence. UDI-6 = Urogenital Distress Inventory. USS = Urgency Severity Scales. VV = voided volume.
†Wilcoxon rank-sum test.
‡The coefficient of OAB-wet was adjusted by parity and age with multivariate linear regression analysis.
§The coefficient of age was adjusted by parity with multivariate linear regression analysis.