

FACTORS INFLUENCING PERSISTENT OR RECURRENT FEMALE OVERACTIVE BLADDER AFTER SOLIFENACIN TREATMENT

Hypothesis / aims of study

The knowledge of factors influencing persistent or recurrence of female overactive bladder (OAB) after treatment may be important for consultation before antimuscarinics treatment. Therefore, the aim of this study is to investigate the above factors.

Study design, materials and methods

Between 2009 and 2011, consecutive women with OAB syndrome were prospectively enrolled. All enrolled patients were requested to complete 3-day bladder diary before urodynamics studies. Besides, all women were requested to complete urodynamic studies, urgency severity scale (USS) [1], overactive bladder symptoms scores questionnaires (OABSS) before and after 12 weeks' solifenacin (5 mg once a day) treatment. Urinary nerve growth factor levels were also determined from the voided urine collected immediately after uroflowmetry.

Persistence of OAB was defined as patients having persistent OAB symptoms and requesting for solifenacin treatment just after 12 weeks' treatment; and recurrence of OAB as having recurrence of OAB symptoms and requesting for solifenacin during the follow-up.

Results

A total of 107 women underwent 12 weeks' solifenacin treatment. The mean follow-up period was 35.7 ± 34.1 weeks. We found that the normalized urodynamic finding after treatment ($n = 27$) was poorly correlated to absence of urgency derived from bladder diary ($n = 46$) or the third question of OABSS (i.e., urgency) = 0 ($n = 51$) (Table 1).

In addition, we found that age, high USS score, and large postvoidal residual volume (PVR) were three independent factors associated with persistent ($n = 13$, 12%) or recurrent ($n = 12$, 11%) OAB by using multivariate backward stepwise logistic regression analyses (Table 2).

The receiver operating characteristic curve areas of using age, USS score, PVR to predict persistence or recurrence were 0.69 (95% confidence interval [CI] = 0.57 to 0.80), 0.67 (95% CI = 0.55 to 0.79) and 0.69 (95% CI = 0.58 to 0.80), respectively. The most appropriate cuff-off point of age was ≥ 60 year-old (sensitivity = 56%; specificity = 77%), UUS ≥ 2 (sensitivity = 90%; specificity = 35%), and PVR ≥ 30 ml (sensitivity = 96%; specificity = 37%) to predict persistence or recurrence of OAB, respectively.

Interpretation of results

Normalized urodynamic finding is poorly associated with absence of urgency after treatment. Age, USS score and PVR can be used as tools to predict persistence or recurrence of OAB after completion of treatment. However, their clinical use may be limited due to either poor sensitive or specificity. Besides, other urodynamic variables, the presence of normalized urodynamic findings, variables of bladder dairies and urinary nerve growth factor level seem not associated with persistence or recurrence of OAB after solifenacin treatment.

Concluding message

Old age, high disease severity, larger residual urine volume may be associated with persistent/recurrent OAB, and the above findings may be used as a guide of consultation for solifenacin treatment.

Table 1. Correlations of normalized urodynamic findings (n = 27), zero of OABSS Q3 (n = 51) and absence of urgency (n = 46) in 3-day bladder diaries for female OAB after solifenacin treatment

Variables	Normalized urodynamic finding†	Normalized OABSS Q3†
Normalized OAB Q3	0.05 (P = 0.65)	-
Normalized urgency	0.01 (P = 0.90)	0.65 (P <0.0001)

† Spearman's correlation coefficient. OAB= overactive bladder; OABSS = overactive bladder symptom scores.

Table 2. Univariate and multivariate backward stepwise logistic regression analyses of factors influencing persistence or recurrence (n = 25) for female OAB after solifenacin treatment (n = 107)

Variables	Values	Univariate	P	Multivariate	P
Age (years)	56±13	1.06 (1.01, 1.10)	0.009	1.06 (1.01, 1.12)	0.01
Parity	2.6±1.6	1.28 (0.96, 1.71)	0.09	-	-
USS total score	2.0±0.9	2.18 (1.19, 3.97)	0.01	1.98 (1.03, 3.81)	0.04
OABSS total score	7.7±2.7	1.28 (1.07, 1.52)	0.007	-	-
Pad test (gm)	15.3±30.5	1.10 (1.00, 1.03)	0.07	-	-
Qmax (ml/s)	20.4±8.6	0.99 (0.94, 1.04)	0.71	-	-
VV (ml)	253±121	1.00 (0.99, 1.00)	0.37	-	-
PVR (ml)	44±22	1.020 (1.000, 1.041)	0.045	1.033 (1.003, 1.063)	0.03
Strong Desire (ml)	202±59	0.99 (0.99, 1.00)	0.11	-	-
PdetQmax (cmH2O)	32±20	1.01 (0.99, 1.03)	0.45	-	-
MUCP (cmH2O)	65±31	0.99 (0.98, 1.01)	0.38	-	-
FPL(cm)	2.9±1.1	0.72 (0.41, 1.26)	0.24	-	-
PTR at MUP (%)	92±31	0.99 (0.97, 1.00)	0.16	-	-
Micturition /24h	12.3±5.1	1.03 (0.95, 1.12)	0.52	-	-
Urgency /24h	3.8±4.6	1.01 (0.92, 1.11)	0.79	-	-
Incontinence /24h	0.9±1.7	1.18 (0.93, 1.49)	0.18	-	-
Nocturia /24h	1.9±1.1	1.50 (1.00, 2.24)	0.048	-	-
FBC (ml)	326±127	0.999 (0.995, 1.002)	0.53	-	-
NU	27 (25%)	1.21 (0.44, 3.30)	0.72	-	-
Urinary NGF level (pg/ml)	20.5±77.0	1.001 (0.995, 1.006)	0.80	-	-

† R² = 0.19. Values are expressed as mean ± standard deviation, N (%) or odds ratio (95% confidence interval).

‡ FBC = functional bladder capacity; FPL = functional profile length; MUCP = maximum urethral closure pressure; MUP = maximum urethral pressure; NGF = nerve growth factor; NU = normalized urodynamic findings after treatment; OAB = overactive bladder; OABSS: overactive bladder symptoms score; PdetQmax = detrusor pressure at maximum flow rate; PTR = pressure transmission ratio; PVR = post-void residual volume; Qmax = maximum flow rate; USS = urgency severity scales; VV = voided volume.

References

1. Hsiao SM, Lin HH, Kuo HC. Factors associated with a better therapeutic effect of solifenacin in patients with overactive bladder syndrome. *Neurourol Urodyn* 2013 (in press) doi: 10.1002/nau.22394.

Disclosures

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