207 Relationship between overactive bladder and comprehensive physical and psychological function in the frail elderly

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Introduction

Overactive bladder (OAB) is common among frail older adults and may be associated with substantial morbidity and mortality. Urinary tract dysfunction significantly decreases quality of life, increases the risk of depression, disability, social isolation, loss of dignity and poor self-rated health. In addition, it is associated with increases in adverse outcomes, including falls, fractures, hospitalization, nursing home admission and has been linked with mortality.
Furthermore, systemic diseases, such as hypertension, diabetes mellitus, dyslipidaemia and metabolic syndrome etc. affect to the lower urinary tract function. Because OAB is associated with an increased risk of a global functional impairment, it is suggested the necessity to evaluate OAB in correlation with overall quality of aging and/or geriatric condition, to better understanding and management for the prevention and treatment for OAB.
Therefore, in the present study, in the frail elderly patients with lower urinary tract symptoms, we measured both OAB and comprehensive geriatric assessment, and evaluated the correlation between both parameters.

Study design, materials and methods

We recruited patients with the frail elderly (65 years old or older) patients with lower urinary tract symptoms who visited the seven urological institutes of this study group. We have defined the patients who have the certificate of needed support from Japanese Ministry of Health as frail.
General physical examination was performed in all patients. Demographic data including age, sex, living situation (with spouse, family or alone) were obtained from the clinical charts. We also assessed the existence of chronic disease (diabetes mellitus, hypertension, dyslipidaemia, cardiac disease, cancer, neurological diseases and stroke). For urinary tract dysfunction, international prostate symptom score (IPSS), QOL score, and overactive bladder symptom score (OABSS) were measured. Neuropsychological evaluation included the Mini-Mental Status Examination (MMSE), Global Depression Scale 5 (GDS5), vitality index and Dementia Behaviour Disturbance scale (DBD scale). Functional impairments were evaluated using Barthel Activities of Daily Living (Barthel index) and Instrumental Activities of Daily Living (IADL). And Qol evaluation was also performed using Visual Analogue Scale.
Spearman's rank correlation coefficient was calculated for relationship between two parameters. Univariate and multivariate analysis were performed.

Results

Total 1086 frail elderly (male: 678 cases; female: 408 case, average age: 77.8±5.9 years old) were recruited in this study. The average value of each parameter was listed in table 1. There were significant correlations between age and the almost all parameters, except for QOL point (Table 2).
There were also significant correlations between total OABSS and physical and neuropsychological parameters, except for MMSE (Table 3).
Among them, correlation between OABSS and Barthel index showed the highest correlation (r=-0.449). There was significant correlation between each OAB symptom and Barthel index (Table 4). Especially, correlations with urgency (r=-0.401) and urgency incontinence (r=-0.501) were higher, as compared to daytime frequency and night-time frequency.
According to the criteria of OAB based on OABSS, OAB patients were 50.6%. The patients with OAB showed significantly higher age, and worse physical and neuropsychological function, except for MMSE (Table 5). In the multivariate analysis, stepwise regression analysis showed that GDS5, DBD scale and QOL were significantly correlated with OAB (Table 6).

Table 1. Average values of various parameters

Age (years)	77.2±5.9
OABSS	5.2±2.9
IPSS	11.5±5.9
MMSE	25.5±3.7
GDS5	1.0±1.2
Barthel index	94.2±11.3
Vitality index	9.3±1.1
DBD scale	6.0±8.0
QOL (VAS)	75.1±15.1

Table 2. Correlation coefficient between age and each parameter

	Correlation coefficient	P value
IPSS	0.069	P=0.106
OABSS	0.154	P<0.001
MMSE	-0.401	P<0.001
GDS5	0.218	P<0.001
Barthel index	-0.244	P<0.001
Vitality index	-0.174	P<0.001
DBD Scale	0.237	P<0.001
QOL (VAS)	-0.80	P=0.061

Table 3. Correlation coefficient between total OABSS and each parameter

	Correlation coefficient	P value
MMSE	-0.005	P=0.904
GDS5	0.272	P<0.001
Barthel index	-0.449	P<0.001
Vitality index	-0.279	P<0.001
DBD Scale	0.239	P<0.001
QOL (VAS)	-0.328	P<0.001

Table 4. Correlation coefficients between each OAB symptom and Barthel index

	Correlation coefficient	P value
Daytime frequent	-0.143	P<0.001
Night-time frequency	-0.145	P<0.001
Urgency	-0.401	P<0.001
Urgency incontinence	-0.501	P<0.001

Table 5. Difference in each parameter between patients with and without OAB (* : p<0.05)

	OAB (+) (n=516)	OAB (-) (n=550)
Age	76.5±6.0	77.9±5.8*
MMSE	25.7±3.6	25.3±3.7
GDS5	0.7±1.0	1.2±1.4*
Barthel index	97.0±8.6	91.4±13.0*
Vitality index	9.6±0.9	9.1±1.3*
DBD Scale	4.5±7.4	7.0±8.1*
QOL (VAS)	78.2±15.1	71.6±14.2*

Table 6. Stepwise regression analysis for OAB

valuables	Category (n)	OR (95%CI)	P
GDS5	<1 (861)	Reference	—
	≥2 (250)	1.579 (1.010 ,2.470)	p=0.045
DBD Scale	≤5 (684)	Reference	—
	≥10 (200)	2.241 (1.371 ,3.662)	P=0.001
QOL (VAS)	≥75 (562)	Reference	—
	<75 (504)	2.005 (1.392 ,2.888)	P<0.001

Conclusions

The present study showed the higher prevalence rate of OAB in the frail elderly visiting to urological institute. As MMSE was not related to OABSS, cognitive function may not a major factor for OAB. Significant correlations between Barthel index, GDS5 and vitality index, and OABSS suggest that the lower physical function and motivation, and depression were markedly related to OAB in the frail elderly.
Consideration for geriatric condition might be needed in the comprehensive management for OAB in the frail elderly.

Disclosure

There is no conflict of interest in the present study