

## A QUESTIONNAIRE SURVEY FOR UROLOGICAL DISTURBANCES USING CORE LOWER URINARY TRACT SYMPTOM SCORE IN PATIENTS WITH CHRONIC STROKE

### Hypothesis / aims of study

Urological disturbances are common in patients with chronic stroke and are associated with a detrimental effect on daily activity and health-related quality of life (QoL). However, few studies have reported urological disturbances among patients with chronic stroke.<sup>1-2</sup> The core lower urinary tract symptom score (CLSS) questionnaire addresses 10 important lower urinary tract symptoms, which were reported as the most influential symptoms with a negative impact on QoL in symptomatic men and women.<sup>3</sup> The aims of this study were to elucidate the clinical features of patients with chronic stroke and to investigate its risk factors.

### Study design, materials and methods

With informed consent, patients with chronic stroke completed an anonymous questionnaire. The self-reported questionnaire consisted six items: (1) sex, (2) age, (3) the first onset of stroke, (4) physical activity, (5) medical history of five diseases (diabetes mellitus, hypertension, dyslipidemia, ischemic heart disease, and depression), and (6) CLSS. Physical activity had three questions: "Can you walk 50 meters by yourself?"; "Can you get to the toilet by yourself?"; and "Can you take your underwear off by yourself?" Each category was scored from 0 (delighted) to 2 (terrible). The CLSS questionnaire addressed 10 symptoms: daytime frequency, nocturia, urgency, urgency incontinence, stress incontinence, slow stream, straining, incomplete emptying, bladder pain, and urethral pain. Each category was scored from 0 (delighted) to 3 (terrible). Finally, patients were asked which single-score symptom had the greatest impact on their QoL.

Table. Core lower urinary tract symptom scores and risk factors in patients with chronic stroke

Symptom		age	female	Medical disease					Physical activity		
				DM	HTN	dyslipidemia	HD	depression	walk	toilet	underwear
Daytime frequency	0.8 ±0.9	N S	N S	N S	N S	N S	N S	N S	N S	N S	N S
Nocturia	1.6 ±1.1	p < 0.01	N S	N S	N S	N S	p < 0.01	N S	N S	N S	N S
Urgency	0.7 ±0.9	p < 0.05	p < 0.05	N S	p < 0.05	N S	N S	N S	N S	N S	N S
Urgency incontinence	0.5 ±0.7	N S	p < 0.05	N S	N S	N S	N S	N S	N S	N S	N S
Stress incontinence	0.2 ±0.6	N S	p < 0.0001	N S	N S	N S	N S	p < 0.01	N S	N S	N S
Slow stream	0.8 ±1.1	p < 0.01	N S	N S	N S	N S	N S	N S	N S	N S	N S
Straining	0.2 ±0.7	N S	N S	N S	N S	N S	N S	N S	N S	p < 0.05	N S
Incomplete emptying	0.5 ±0.8	N S	N S	N S	N S	N S	N S	N S	N S	N S	N S
Bladder pain	0.0 ±0.2	N S	N S	N S	N S	N S	N S	N S	N S	N S	N S
Urethral pain	0.1 ±0.3	N S	N S	N S	N S	N S	N S	N S	N S	N S	N S
Total score	5.4 ±4.0	p < 0.01	N S	N S	N S	N S	N S	N S	N S	p < 0.05	N S
QoL index	2.6 ±1.8	p < 0.01	N S	N S	p < 0.05	N S	N S	N S	N S	N S	p < 0.05

N S, not significant; DM, diabetes mellitus; HTN, hypertension; HD, ischemic heart disease

### Results

Fifty-one patients (33 men and 18 women) completed the study. The mean±SD age was 71.7±10.1 years. The average time after the first stroke onset was 8.5±6.6 years. The average physical activity score was 1.47±0.64 (walk), 1.20±0.49 (toilet), and 1.27±0.57 (underwear). In CLSS, (1) nocturia score was 1.6±1.1, with ischemic heart disease and age (p < 0.01) as risk factors; (2) urgency score was 0.7±0.7, with hypertension, old age, and being female (p < 0.05) as risk factors; (3) urgency incontinence score was 0.5±0.7, with being female (p < 0.05) as risk factor; (4) stress incontinence score was 0.2±0.6, with depression (p < 0.01) and being female (p < 0.0001) as risk factors; (5) slow stream score was 0.8±1.1, with old age (p < 0.01) as risk factor; and (6) straining score was 0.2±0.7, with physical activity (toilet) (p < 0.05) as risk factor. Nocturia (23.5%) and urgency incontinence (9.8%) had the most impact on patient's QoL.

### Interpretation of results

We found that nocturia and urgency incontinence had the most impact on the QoL in patients with chronic stroke in this study. Besides, the most influential component on total CLSS and QoL index was physical activity, suggesting that activities of daily living play an important role in normal detrusor contraction and micturition. Overactive bladder symptoms such as nocturia, urgency, urgency incontinence, and stress incontinence were associated with age, female sex, and having a medical condition (ischemic heart disease, hypertension, and depression). Underactive bladder symptoms such as slow stream and straining were associated with age and physical activity after stroke.

### Concluding message

In patients with chronic stroke, storage symptom was associated with not only neurological deficits but also sex and general diseases, whereas voiding symptom was influenced by physical activity after stroke.

### References

1. Urological disturbance and its neuroanatomical correlate in patients with chronic brainstem stroke. *NeuroUrol Urodyn* 2015.

2. Bladder storage and emptying disorder frequencies may change according to the post-stroke interval. *Neurourol Urodyn* 2011.
3. Core lower urinary tract symptom score (CLSS) for the assessment of female lower urinary tract symptoms: a comparative study. *Int J Urol* 2011.

Disclosures

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