486

Imanishi R[1], Nakagawa H[2], Matsumoto K[3], Awaji S[4], Nabekura M[4], Tanno O[4], Kaiho Y[2], Matsushita M[2], Arai Y[2], Kohzuki M[5]

1. *Department of Occupational Therapy, Niigata University of Health and Welfare,* ***2.*** *Department of Urology, Tohoku University Graduate School of Medicine,* ***3.*** *Department of physical therapy, Niigata University of health and welfare,* ***4.*** *Geriatric Health Services Facility, Matsushima Midorinoie,* ***5.*** *Department of Internal Medicine and Rehabilitation Science, Tohoku University Graduate School of Medicine*

INVESTIGATION OF NIGHTTIME STORAGE SYMPTOMS OF FEMALE RESIDENTS WITH STROKE IN A GERIATRIC HEALTH SERVICES FACILITY

Hypothesis / aims of study

More than thirty percent of the residents in geriatric health services facilities for the elderly, aged 65 years or older, in Japan have experienced stroke. Most of them suffer from lower urinary tract symptoms. Nocturia is prevalent in the elderly. However, the actual nighttime storage symptoms of residents with stroke in geriatric health services facilities remain unknown. We assessed the nighttime storage symptoms of residents with stroke using completed bladder diaries and a monitoring machine.

Study design, materials and methods

This study included 20 female stroke residents without dementia in a geriatric health services facility. The mean age was 79.7±7.3 years old (range 68 to 91 years). We monitored incontinence using a thin-layer membrane sensor in the diaper or underwear. We changed the pad and/or diaper after each sensor response and measured the volume of leakage by weighing the pad and/or diaper. Moreover, the voided volume was measured during micturition by a urine meter installed in the toilet in the rest room. Each subject was monitored for 48 hours and the voiding time, incontinence time, 24-hour frequency, incontinence episode, volume of micturition and leakage, urinary urgency, fluid intake time, and volume and action observation at incontinence were recorded in bladder diaries.

Results

The 24-hour urinary frequency was 15.6±7.4 times (mean ± Standard Deviation, range 6 to 31 times) per day; the night-time frequency was 5.4±3.2 times. A total of 19 (95%) experienced night-time urination more than 2 times. The 24-hour voided volume was 1517.6±392.9 ml (range 1012 to 2276 ml) per day and the nocturnal urine volume was 760.3±271.9 ml. The rate of nocturnal urine production was 51.6±17.9% (range 17 to 83.2%), and 18 of the patients (90%) exhibited nocturnal polyuria (Fig.1). The mean night-time voided volume was 182.7±78.9 ml (range 80 to 357 ml); 2 cases voided less than 100ml, 10 cases voided 101 to 200 ml, and 7 cases voided 200 ml or more. The night-time maximum voided volume was 297ml (range 160 to 570 ml), and a total of 3 (15%) had a night-time maximum voided volume less than 200ml. The number of leakages was 4.4±5.4 times (range 0 to 17.5 times) per day; night-time leakages was 1.3±1.4 times. Eleven subjects (55%) had urinary incontinence at night. The number of incidents of urinary urgency was 2.2±2.4 times (range 0 to 9.5 times) over 24 hours; night-time urinary urgency was 0.9±1.1 times (Fig.2). Thirteen of the residents (65%) experienced one or more situations of urinary urgency at night. Of 11 urinary incontinence subjects, 6 (54.5%) had urge urinary incontinence at night. The mean 24-hour volume of fluid intake was 1187.1±416.4ml (range 724 to 2320 ml); night-time volume of fluid intake was 34.1±53.1ml, and 10 of them (50%) consumed water during the night-time.

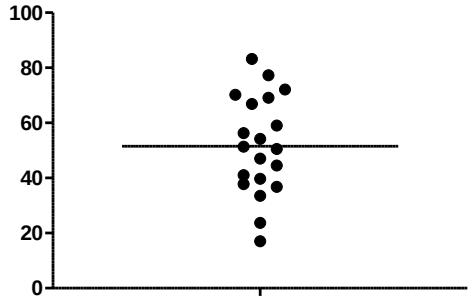

Figure 1. Rate of nocturnal urine production

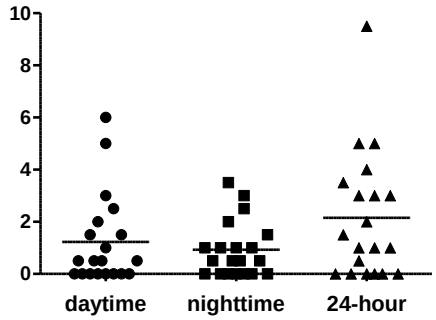

Figure 2. Urinary urgency frequency

Interpretation of results

Most female stroke residents without dementia had nocturia and nocturnal polyuria. It suggested that nocturia was due to the overproduction of urine at night, rather than a reduced bladder capacity, because most of them had a nighttime maximum voided volume of 200ml or more. On the other hand, 65% of the residents experienced urgency during sleep. It is important to understand these factors to allow for interventional voiding therapy in these residents.

Concluding message

We conclude that most female residents with a history of stroke exhibited nocturia with nocturnal polyuria and 30% residents experienced urge urinary incontinence during night-time.

Specify source of funding or grant	**NONE**
Is this a clinical trial?	**Yes**
Is this study registered in a public clinical trials registry?	**No**
Is this a Randomised Controlled Trial (RCT)?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**the Ethics Committee Tohoku University School of Medicine**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**