

A SIMPLIFIED PROTOCOL FOR ASSESSING URINARY PATTERNS WITHOUT A DETAILED UROLOGIC EXAMINATION IN PATIENTS WITH URINARY INCONTINENCE DURING REHABILITATION

Hypothesis / aims of study

Urinary incontinence in patients with neurological disease or following stroke is a common condition that may interfere with rehabilitation and adversely affect functional recovery and outcome. However, there are various types of urinary incontinence, and it is difficult to diagnose the specific type without a detailed urologic examination (e.g., ultrasonography, digital rectal examination, urodynamic study). In this study, we classified the various types of urinary patterns using a long-term urine volume monitor and assessed the usefulness of this classification in rehabilitation.

Study design, materials and methods

We conducted a prospective follow-up of patients with urinary incontinence (of all ages and of both sexes). These patients were admitted for rehabilitation between August 2011 and December 2012 following a stroke or a neurological or spinal disease. Long-term urine volume monitors (Yuririn™) were used to continuously measure urinary bladder volumes over 24 h. Subsequently, urinary patterns were classified into different types on the basis of the measured results. Urinary management scores from the Functional Independence Measure (FIM) were measured as an additional criterion before and after rehabilitation.

Results

50 patients (48% males; mean age: 77 ± 14.0 years) hospitalized for rehabilitation caused by stroke, neurological, or spinal disease were included in this study.

Urinary patterns were classified into three groups: 1) storage disorder group (21 patients); 2) voiding disorder group (3 patients); and 3) others (26 patients) (Figures 1, 2, and 3). Most patients in the storage and voiding groups were examined and treated by urologists. Patients in the “others” group were considered to have urinary incontinence that was mostly functional, and the causes were distinguished into the following: 1) communicative disorder of the urge to urinate (7 patients); 2) motility disorder (16 patients); and 3) cognition disorder (3 patients). In this “others” group, urinary management scores from FIM revealed significant improvements after rehabilitation ($P < 0.05$), and 5 patients were able to discontinue the use of diapers as well.

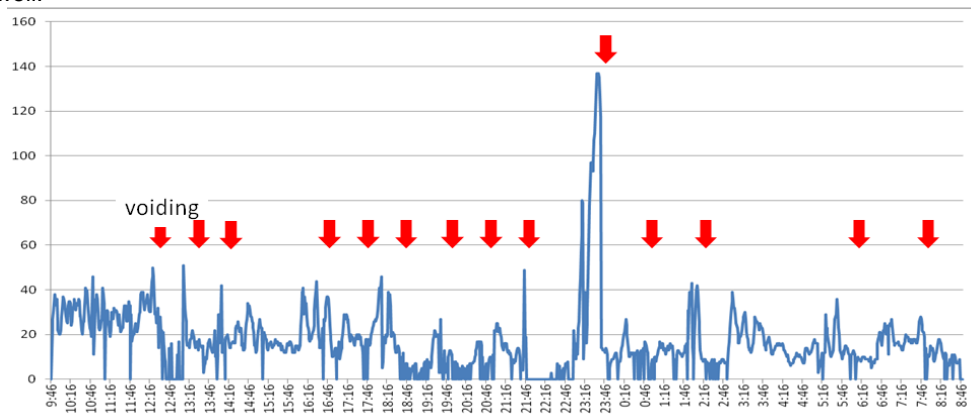


Figure 1

A representative urinary pattern in a patient from the “storage disorder group” as measured by Yuririn™. The graph reveals a short voiding interval as well as a decrease in the functional bladder capacity. The vertical and horizontal axes reveal urinary bladder volume and time, respectively. The arrows (↓) indicate the time of voiding.

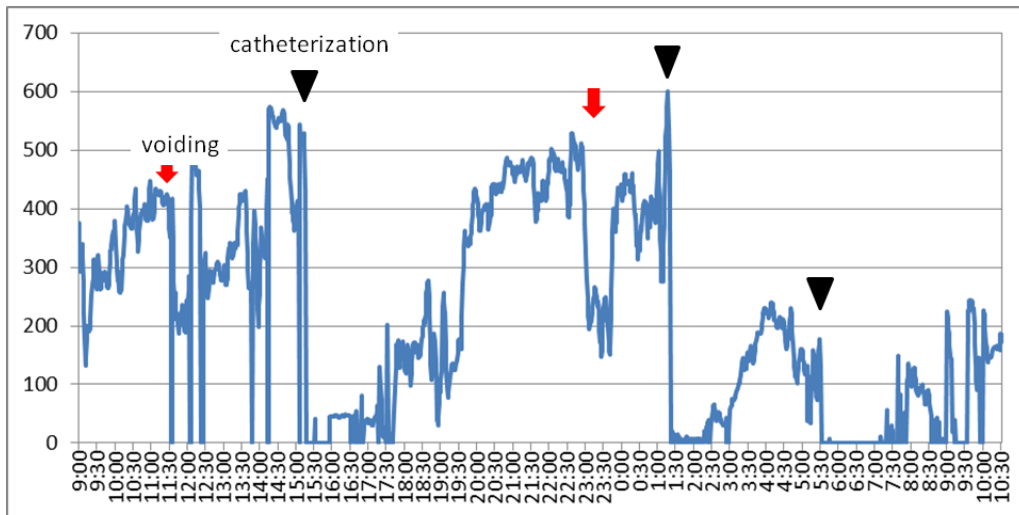


Figure 2

A representative urinary pattern from a patient in the “voiding disorder group.” The arrowheads (▼) indicate the time of urethral catheterization. The graph suggests that a large amount of urine was retained in the bladder before catheterization.

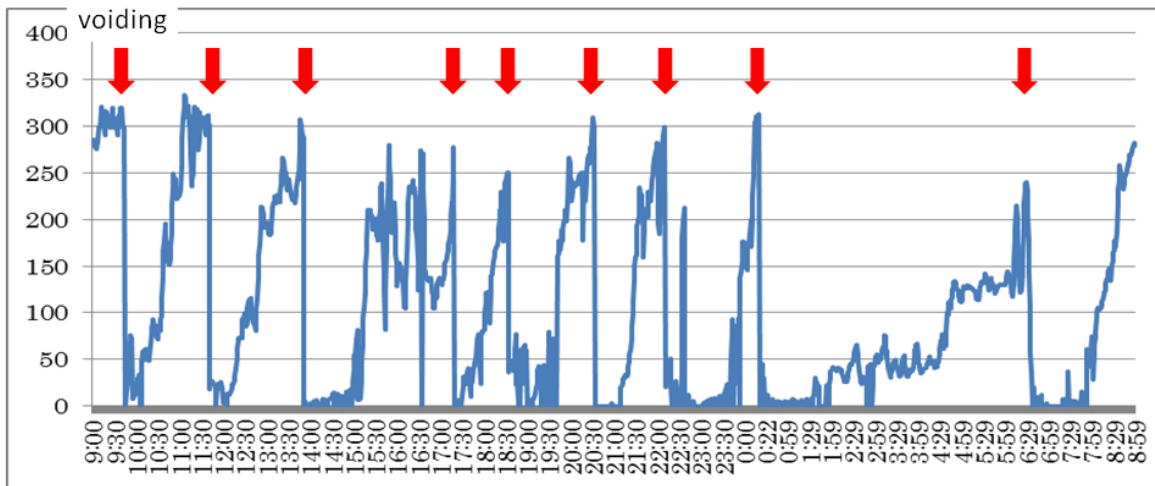


Figure 3

A representative urinary pattern from a patient in the “others” group.

The graph reveals a functional bladder capacity and no residual urine after voiding. However, the short voiding interval pattern was considered as polyuria.

Interpretation of results

Urinary patterns were classified using results from long-term urine volume monitors. Using this classification, we were able to identify the various types of functional urinary incontinence with the exception of urological disorders. This classification might contribute to effective rehabilitation for these patients.

Concluding message

The present simplified protocol for assessing urinary patterns without a detailed urologic examination could be useful for patients with urinary incontinence during rehabilitation; in addition, it might contribute to more efficient utilization of such a limited medical resource.

Disclosures

Funding: none **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Ethics Committee of Yufuin Kosei Nenkin Hospital **Helsinki:** Yes **Informed Consent:** Yes