

# Changes and relationship between lower urinary tract symptoms, micturition desire and ADL in stroke patients

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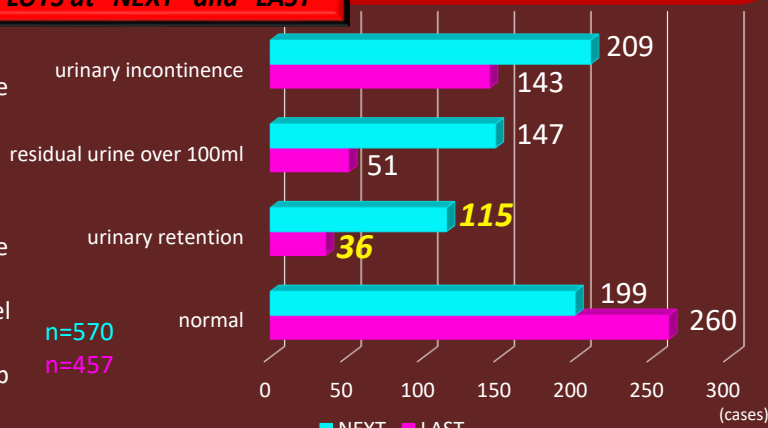
## Introduction

The incidence of lower urinary tract symptoms (LUTS) within 3 months of the entire stroke is reported as 53%, and according to the symptoms, nocturia is most frequent (36%), followed by urge incontinence (29%), but urinary retention was only 29% in the acute phase. Furthermore, when the same patient was followed up for 4 to 48 months, LUTS decreased from 53% to 46%, and all cases of urinary retention became possible to urinate. In addition, rehabilitation has been reported to reduce urination disorders, and ADL levels are greatly involved in performing normal urination actions. In this study, we examined the relationship between ADL and LUTS and changes using routine clinical cases.

## Materials and methods

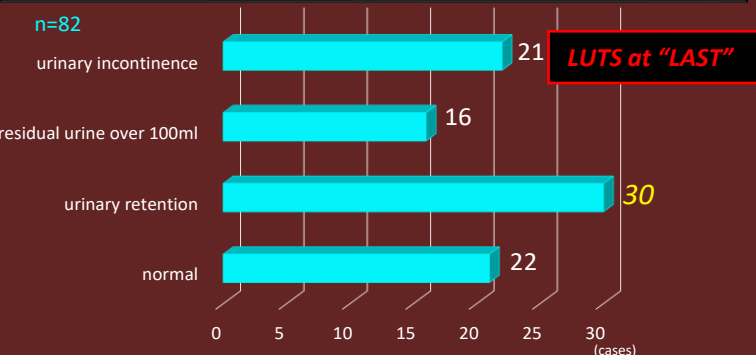
570 cases with history of urinary catheter placement were included (cerebral infarction 289, cerebral hemorrhage 204, and subarachnoid hemorrhage 77). LUTS after urethral catheter removal was classified into four groups. LUTS after catheter removal was evaluated every week, the rehabilitation start date was the initial evaluation time (FIRST), and the evaluation date closest to the discharge date was the final evaluation time (LAST). We used Barthel Index (BI) as an assessment of ADL and examined its association with LUTS. Next, we examined the relationship between BI and LUTS at "FIRST", at the time of initial catheter removal (NEXT), and at "LAST" focusing on urinary retention groups.

**Fig.1 LUTS at "NEXT" and "LAST"**



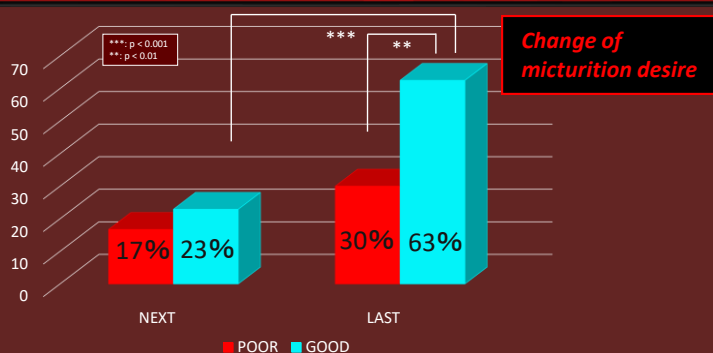
LUTS at "NEXT" was 115 cases (20%) of urinary retention, 147 cases (26%) of residual urine over 100ml, and 209 cases (37%) of urinary incontinence, and at "LAST" were 36 cases (8%), 51 cases (11%), and 143 cases (31%).

**Fig.2 Changes in LUTS of urinary retention groups at "NEXT"**

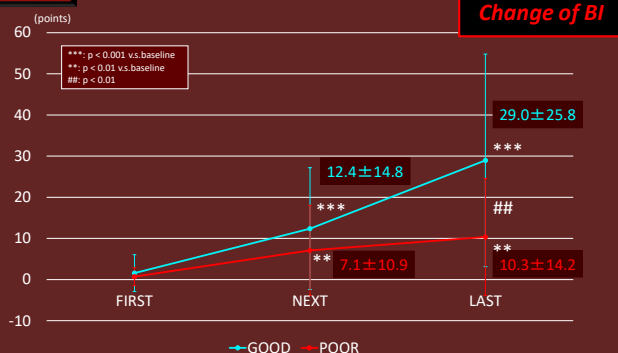


LUTS at "LAST" were 30 cases (37%) of urinary retention, 20% of residual urine over 100ml, and 26% of urinary incontinence. It was possible to remove catheter in 52 cases (63%), and the number of removal was 40 in 2 times, 5 in 3 times, 5 in 4 times. Moreover, only 21 patients (26%) used oral medication for LUTS.

**Fig.3 Comparison of progress of urinary retention groups at "NEXT"**



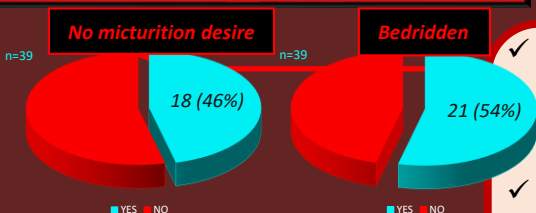
**Change of micturition desire**



**Change of BI**

Micturition desire and ADL were compared in the urinary retention group (POOR) and the urinary retention improvement group (GOOD) at "LAST". While micturition desire in "POOR" was 17% at "NEXT" and 30% at "LAST" (n.s.), in "GOOD" was significantly improved from 23% to 63% ( $p < 0.001$ ). Moreover, there were significant differences between the groups ( $p < 0.01$ ). Changes in ADL were examined at "FIRST", "NEXT", and "LAST". Significant improvement was observed with  $0.7 \pm 2.2$ ,  $7.1 \pm 10.9$  ( $p < 0.01$ ), and  $10.3 \pm 14.2$  points ( $p < 0.01$ ) in "POOR",  $1.6 \pm 4.5$ ,  $12.4 \pm 14.8$  ( $p < 0.001$ ), and  $29.0 \pm 25.8$  points ( $p < 0.001$ ) in "GOOD". Moreover, there were significant differences between the groups at "LAST" ( $p < 0.01$ ).

**Fig.4 The cases without micturition desire and with bedridden at "LAST"**



In the cases of no micturition desire, it was possible to urinate in 46%. In the cases of bedridden, it was possible to urinate in 54%.

## Conclusions

This study is a report that examined the relationship between LUTS and ADL in a large number of 570 cases, and seemed to be a few valuable studies. In addition, it was a study using daily clinical cases and seemed to be clinically useful.

It was thought that ADL improvement by early treatment for primary disease and early rehabilitation start would lead to LUTD reduction.

Also, in cases where ADL decreased, it was considered important to try to remove the catheter.

I have no financial conflicts of interest to disclose concerning the presentation.

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