

## DO IMPROVEMENT SCORES OF FUNCTIONAL INDEPENDENCE MEASURE REFLECT URINATING FUNCTION?

### Hypothesis / aims of study

Functional Independence Measure (FIM) is employed for ADL evaluation in rehabilitation treatment.(1) FIM scores evaluate each of the subscales of self-care, excretion, transfer, motor and cognition. On the other hand, urination does not solely require the lower urinary tract function but also various cognition and motor functions such as going to the toilet and (un)dressing in its course.(2,3) In this study, we have examined whether the improvements of FIM scores reflect urinating function.

### Study design, materials and methods

Candidates are twenty hospitalized patients undergoing rehabilitation from brain hemorrhage, spinal disorder and rectal cancer operation that were taken care of by the Toilet Support Committee from 2011 to 2012.

Patients above were measured their FIM scores before and after the rehabilitation treatment. The urinating conditions were divided into six stages and numerically rated from 0 to 5 scores, namely: 0) transurethral catheter placement, 1) catheterization, 2) total incontinence, 3) partial incontinence, 4) incontinence pad usage during nighttime 5) independent urination. We made a comparative review of each FIM improvement scores and urinating condition improvement scores.

### Results

FIM total improvement score except for excretion subscale was  $17.3 \pm 3.5$  with urinating condition improvement score of  $3.0 \pm 0.4$ , each significantly showing the improvement through rehabilitation. FIM exertion subscale improvement score and urinating condition improvement score were positively correlated with each other ( $r=0.464$  and  $p=0.038$ ). However, urinating condition improvement score was insignificantly correlated with other FIT subscales. FIM total improvement score except for exertion subscale and urinating condition improvement score also had no significant correlation with each other ( $r=0.379$  and  $p=0.099$ ). However, the final FIM exertion subscale improvement score and final urinating condition score had significant correlation with each other ( $r=0.421$  and  $p=0.064$ ) and FIM self-care subscale and final urinating condition score likewise had significant correlation with each other ( $r=0.525$  and  $p=0.016$ ).

### Interpretation of results

There is variability among the improvements of transfer, motor and cognition since the causative disorders do not derive from a particular brain area and there is a few number of cases to be examined thus the degrees of incontinence and the urinating conditions were also mixed. This result indicates the possibility that the motor and cognition improvements enhanced by rehabilitation did not necessarily exert significant influence on urination itself. Moreover, as FIM evaluates the degree of autonomy, the evaluation does not necessarily reflect the improvement of lower urinary tract function, which highlights the need for another measure that takes into account detailed motor and cognition improvements. However, since the final FIM score and the final urinating condition score have a significant correlation, patients with high FIM scores are believed to deserve positive consideration for better urination.

### Concluding message

Patients with higher FIM scores are perceived to be capable of better urination.

### References

1. Hamilton BB, Laughlin JA, Fiedler RC, Granger CV. Inter rater reliability of the 7-level functional independence measure (FIM). Scand J Rehabil Med,26, p115-119, 1994
2. Ueda T, Yoshimura N, Yoshida O. Prognostic factors for long-term maintenance of urinary continence in patients with incontinence managed by diapers or indwelling catheters. Eur Urol 37: 318-324, 2000
3. Nygaard IE, Kreder KJ, Lepic MM et al. Efficacy of pelvic floor muscle exercises in women with stress, urge and mixed urinary incontinence. Am J Obstet Gynecol 174: 120-125,1996

### Disclosures

**Funding:** none **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Ethics Committee of Shizuoka kousei hospital **Helsinki:** Yes **Informed Consent:** Yes