

## RATIONAL ASSESSMENT OF BLADDER FUNCTION FOR BETTER URINARY CARE OF DIAPER DEPENDENT ELDERLY

### Hypothesis / aims of study

Diaper application for elderly with mental and/or physical disability is not often based on rational evaluation of the bladder function. Some patient with normal bladder may be voiding on the diaper, who knows of this tragedy! What is called "voiding patter" is meaningless to assess the bladder function since daily urinary output and voiding rhythm depends on his kidney, which control body fluid balance against excess intake or loss of water. Bladder function itself, not daily rhythm nor voiding pattern, could be assessed with scoring of average voided volume, residuum and urinary frequency by diaper check every one hour for a day.

### Study design, materials and methods

To assess the individual bladder function diaper was checked every one hour in a day or consecutive two days in some cases. When the diaper is wet, it is weighed to get voided or leaked urinary volume and residuum measurement is followed more than 3 times a day. Residuum measurement with handy ultrasonic scanner (Bladderscan and/or Yuririn)<sup>1)2)</sup> could well differentiate the overactive bladder from deteriorated one with overflow incontinence. Every nurse and care worker records the time and weight of the wet diaper with the residuum on the urinary care chart. Scoring the bladder function is based on (1) average voided volume: 1 point >150gm, 0 point <149gm, (2) percentile residuum: 1 point <30%, 0 point >31% and (3) frequency: 1 point <7 times a day, 0 point >8 times. Thus, in total of these three factors, score 3 means normal bladder function ( av. Voided volume >150ml, residuum less than 30%, frequency less than 7 times a day), score 2 & score 1 means impaired one and score 0 means deteriorated one.

### Results

1) Bladder function of 117 new admission with stroke (54 male, 60 female; aged av. 74.4 ± 12.0 y/o; 74 infarction, 31 hemorrhage and 12 injury) revealed to be 32 normal (27.4%), 63 impaired (53.8%) and 22 deteriorated (18.8%). 2) The corresponding data of these 117 patients showed (123.6 ± 51.8) ml of average voided volume, (27.7 ± 21.0) % of percentile residuum, (9.9 ± 3.9) of frequency per day and ( 1,149.3 ± 415.6) ml of urinary output per day, respectively. 3) 32 cases (27.4%) were normal bladder, 28 cases (23.9%) were overactive bladder (av. voided volume < 120ml, percentile residuum <30% and frequency >8 times), 24 cases (20.5%) were pseudo-overactive bladder (V.V.<120ml, percentile residuum >30% and frequency >8 times) and 33cases (28.2%) were other abnormal bladders. 4) Each time and volume of wet diapers in consecutive two days were not consistent with, while average data of voided volume, residuum and frequency were consistent with each other. This means that the voiding pattern is meaningless, while bladder function is reliable.

### Interpretation of results

Many of post stroke patients are suffering from neurogenic bladder, but just only one day hourly diaper-check up clarified the bladder function for reasonable urinary care of his remaining years. With or without prompted voiding<sup>3)</sup>, more rational nursing care for dependent elderly could be accomplished if his bladder function is classified with mental and physical ability. Diaper with normal bladder means lack of care for mental and/or physical support. Diaper with impaired bladder may be discarded with enthusiastic nursing care, while diaper with deteriorated bladder will be mandatory.

### Concluding message

Bladder function of diaper dependent elderly could precisely be assessed by one day hourly diaper-check up. Scoring of bladder function with that of mental & physical ability is valuable for rational urinary care for better QOL of dependent elderly.

### References

- 1) Jpn J Urol (2005) 96: 601-609
- 2) Meth In jorm Med (1994) 33: 97-100
- 3) J Am Geriatr Soc. (2001) 49: 706-709

**FUNDING:** None

**HUMAN SUBJECTS:** This study did not need ethical approval because It is not experimental nor hazardous clinical management, agreed with informed consent. but followed the Declaration of Helsinki Informed consent was obtained from the patients.