

RELATIONSHIP BETWEEN COGNITIVE DYSFUNCTION AND URINARY INCONTINENCE IN THE PATIENTS WITH ALZHEIMER'S DISEASE

Hypothesis / aims of study

The objective of this study was to estimate the prevalence of urinary incontinence (UI) and to reveal any relationship between UI and cognitive function in Korean Alzheimer's disease (AD) patients.

Study design, materials and methods

A total of 464 patients with probable AD according to the National Institute of Neurological and Communicative Diseases and Stroke/Alzheimer's Disease and Related Disorders Association (NINCDS-ADRDA) criteria were included in this study. The prevalence and type of UI were assessed by structured questionnaires such as International Consultation on Incontinence Questionnaire-short form (ICIQ-UI SF), the International Prostate Symptom Score (IPSS) questionnaire and the Overactive Bladder-Validated 8-question Screener (OAB-V8). Frequency, urgency and UI episodes were assessed by using a three-day consecutive voiding diary. Assessment of physical and cognitive functions was performed on each subject using the Korean version of the minimal status examination (K-MMSE), the Clinical Dementia Rating (CDR), the Clinical Dementia Rating-Sum of Boxes (CDR-SB), the Global Deterioration Scale (GDS), the Barthel Activities of Daily Living (B-ADL) and the Seoul-Instrumental Activities of Daily Living (S-IADL).

Results

In the total population sample, the prevalence of UI was 24.8% (115/464), and prevalence differed between sexes (29.6%, 37/125) in men and (23.0%, 78/339) in women subjects. The most common type of UI was urge incontinence (UUI) (44.3%, 51/115), followed by functional incontinence (FUI) (25.3%, 29/115), overflow incontinence (OUI) (20.0%, 23/115), and stress incontinence (SUI) (10.4%, 12/115). Furthermore, UI types also showed gender differences. In men, the most common type of UI was FUI (35.1%, 13/37) followed by UUI (29.7%, 11/37), OUI (24.3%, 9/37), and SUI (10.8%, 4/37), whereas in women, the most common type was UUI (51.3%, 40/78), followed by FUI (20.5%, 16/78), OUI (17.9%, 14/78) and SUI (10.3%, 8/78). The prevalence of UI was different among patients with different CDR and GDS statuses. The prevalence of UI in CDR 0.5 and 1 was 0% (0/196) and this increased to 23.7% (40/169) in CDR 2, to 71.4% (60/84) in CDR 3, and 100% (15/15) in CDR 4. The prevalence of UI in GDS 3 and 4 was 0% (0/135) and this increased to 14.1% (26/185) in GDS 5, to 60.1% (86/141) in GDS 6, and 100% (3/3) in GDS 7. No significant correlation was found between ICIQ-UI SF, IPSS, or OAB-V8 scores and CDR status ($p>0.05$).

The factor most commonly found to be related to UI in AD patients was CDR-SB, followed by B-ADL. Multiple linear regression analysis conducted to investigate possible relationships between UI and age, sex, and aspects of functional, cognitive and emotional status showed that the dependent variable 'UI' was predicted by CDR-SB ($P<0.001$) and by B-ADL ($P<0.001$) scores in all study subjects.

Interpretation of results

The most common type of UI in patients with AD was UUI. CDR-SB and B-ADL had the greatest impact on the prevalence of UI in these study participants

Concluding message

We conclude the CDR-SB and B-ADL are useful instruments for determining the future development of UI in AD patients.

Specify source of funding or grant	None
Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Ethics Committee of Hallym University Kangnam Sacred Heart Hospital
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes