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Factors associated with improvement or decline in cognitive function after an ischemic stroke in Korea: The Korean stroke cohort for functioning and rehabilitation (KOSCO) study

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Background: We conducted a prospective cohort study to investigate prevalence of post stroke cognitive impairment at 3 and 12 months after stroke onset and identify clinical and demographic factors associated with improvement or decline in cognitive function between 3 months and 12 months.

Methods: We analyzed the cognitive assessments of total patients and patients older than 65 years separately. All patients with an ischemic stroke were divided into normal cognitive group (NCG) and impaired cognition group (ICG) by using a cutoff score on the Korean Mini-Mental State Examination (K-MMSE). Patients were additionally classified into 3 subgroups according to the changes in their K-MMSE scores between 3 and 12 months: Stable group with K-MMSE scores changes ranging from −2 to +2 points (−2≤ MMSE ≤ +2); converter group with increase more than 3 points (3≤ MMSE); and reverter group with decrease more than 3 points (−3≤ MMSE). We also analyzed factors affecting cognitive change from 3 months to 12 months among the 3 groups including baseline medical record, stroke and treatment characteristics, and various functional assessments after 3 months.

Results: A total of 2,625 patients (older patients=1,431) with first time ischemic stroke were included in this study. Among these patients, 1,735 (66.1%) (older patients=835 (58.4%)) were classified as NCG, while 890 patients (33.9%) (older patients=596 (41.6%)) were the ICG at 3 month K-MMSE assessment. Among NCG, 1,460 (82.4%) were stable group, 93 patients (5.4%) were converter group, and 212 patients (12.2%) were reverter group at 12 months onset. Among ICG, 472 patients (53.0%) were stable group, 321 patients (36.1%) were converter group, and 97 patients (10.9%) were reverter group. Among NCG of total patients, hypertension, and cortical or multiple level involvement was dominant in reverter group, male sex, lower onset age, higher education level were dominant in stable group. In addition, functional assessments in stable group including NIHSS, mRS, FIM, K-MBI, FAC, GDS, and EQ-5D at three months were significantly better in scores compared to other groups. For the tendency of ICG of total patients, onset age, hypertension history was higher; education level was lower in reverter group. All functional assessments at 3 months showed better scores in converter groups and worse scores in reverter group.

Conclusions: The prevalence of cognitive impairment showed difference between 3, 12 months. To analyze the cognitive change from 3 months to 12 months, the proportion stable group was dominant in NCG and converter group was higher in ICG. By investigating the influencing factors from each group, we were able to identify the predictors including the age factor.

Biography

Yong-Il Shin has completed his PhD from Chonbuk National University. He is the Professor of Yangsan Pusan National University Hospital. He has published more than 99 papers in reputed journals and his research interests are the areas of neurorehabilitation based on neuroscience after CNS diseases.

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