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WHITE MATTER HYPERINTENSITIES PREDICT DEMENTIA IN POSTSTROKE PATIENTS WITH COGNITIVE IMPAIRMENT NO DEMENTIA (CIND)

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Introduction: Longitudinal studies of predicting dementia conversion of poststroke cognitive impairment no dementia (CIND) are limited.

Objective: To investigate the clinical and imaging predictors of dementia conversion in poststroke patients with CIND.

Aim: To understand dementia conversion of CIND.

Methods: 143 patients with CIND (defined as impairment in at least one cognitive domain without meeting the criteria of dementia) at three months after stroke were recruited and followed up for one year. Dementia was diagnosed using the criteria of Diagnostic and Statistical Manual of Mental Disorders (4th edition, DSM-IV). MRI measurements including infarction, microbleeds, white matter hyperintensities (WMHs) and hippocampal volume were conducted. Logistic regression was performed to find the predictors of dementia at follow-up.

Results: 16 (11.2%) out of the 143 patients developed dementia 15 months after stroke. In univariate comparisons, subjects with dementia at follow-up had older age ( $78.0 \pm 5.3$  vs.  $71.5 \pm 8.5$  years,  $p=0.003$ ) and higher NIHSS score ( $7.1 \pm 3.5$  vs.  $4.7 \pm 3.3$ ,  $p=0.005$ ) on admission. They also had higher frequency of old infarcts in the thalamus (31.3% vs. 11.0%,  $p=0.025$ ), larger volume of old infarcts ( $4.2 \pm 11.2$  vs.  $0.7 \pm 2.6$  cm<sup>3</sup>,  $p < 0.001$ ) and WMHs volume ( $33.2 \pm 34.0$  vs.  $14.2 \pm 14.1$  cm<sup>3</sup>,  $p=0.016$ ). In logistic regression, age (odds ratio [OR] = 1.203, 95% C.I. = 1.054-1.373,  $p=0.006$ ), NIHSS score on admission (OR = 1.324, 95% C.I. = 1.082-1.619,  $p=0.006$ ) and WMHs volume (OR = 1.045, 95% C.I. = 1.007-1.084,  $p=0.019$ ) were significant predictors of dementia at follow-up.

Conclusions: WMHs volume predicts dementia in poststroke patients with CIND, suggesting subcortical ischemic vascular disease was an important origin of poststroke delayed dementia.