SMALL DEEP INFARCTION IN PATIENTS WITH ATRIAL FIBRILLATION: EVIDENCE OF LACUNAR PATHOGENESIS

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Background and Purpose: It is difficult to clarify whether the small deep infarction is caused by cardioembolism or intrinsic small vessel disease in patients with atrial fibrillation (AF). The purpose of this study was to determine whether the pre-existing small vessel disease would differ according to the presenting infarct pattern.

Methods: 231 stroke patients with AF were enrolled irrespective of the stroke subtype. We divided patients into 2 groups (lacunar infarct pattern, n=20 vs non-lacunar pattern, n=211) according to the acute infarct pattern. Patients with acute single small deep infarction on diffusion weighted image were classified as lacunar infarct pattern. We assessed the severity of pre-existing small vessel disease by grading white matter lesions (WMLs), multi-lacunar state, and microbleeds. Demographic characteristics, vascular risk factors, and neuroimaging data were compared between the two groups.

Results: Patients with lacunar infarct pattern showed more severe WMLs than those with non-lacunar pattern. Multi-lacunar states were more prevalent in the lacunar infarct pattern group compared with the non-lacunar pattern group (65% vs 28.9%, p=0.001). Multiple logistic regression analyses revealed periventricular WMLs (OR, 4.12; 95% CI, 2.14 to 7.92), deep WMLs (OR, 3.42; 95% CI, 1.75 to 6.66) and multi-lacunar state (OR, 7.85; 95% CI, 2.45 to 25.6) as the predictors of lacunar infarct pattern.

Conclusions: The severity of WMLs and chronic lacunes were independent predictors of incident infarct pattern, which suggested that acute single small deep infarction might be caused by intrinsic small vessel disease despite the presence of concomitant AF.