A study of microemboli monitoring of atherosclerotic thrombotic cerebral infarction and artery stenosis

D.J. Sun¹, A.X. Zhuang¹, Q.H. Zeng¹, Y.L. Jiang¹, J.D. Jiang¹, S.Q. Feng², Y. Zhang³, H.M. Huang³, H.X. Nie³ and L. Liu¹

¹Department of Neurology, LianyunGang Second People’s Hospital (Bengbu Medical College, Lianyungang Hospital), District Xinpu, LianyunGang, China
²Neurological Examination Division, LianyunGang Second People’s Hospital (Bengbu Medical College, Lianyungang Hospital), District Xinpu, LianyunGang, China
³Department of Radiology, LianyunGang Second People’s Hospital (Bengbu Medical College, Lianyungang Hospital), District Xinpu, LianyunGang, China
⁴Department of Ultrasound, LianyunGang Second People’s Hospital (Bengbu Medical College, Lianyungang Hospital), District Xinpu, LianyunGang, China

Corresponding author: J.D. Jiang
E-mail: jiandongjiang@yeah.net

Received May 16, 2013
Accepted October 30, 2013
Published August 28, 2014
DOI http://dx.doi.org/10.4238/2014.August.28.17

ABSTRACT. This study aimed to assess the relationship between the recurrence and prognosis of patients with acute middle cerebral artery infarction, atherosclerotic brain infarction, and the existence of microemboli. We continuously enrolled patients with acute atherosclerotic thrombotic cerebral infarction artery stenosis. We performed transcranial Doppler color ultrasound micro emboli monitoring, color Doppler ultrasound carotid artery tests, intracranial...
and carotid artery magnetic resonance angiography, impairment evaluation of nerve function, and registration of stroke recurrence and stroke mortality. Of the 49 patients enrolled in the study, 123 main arteries presented atherosclerotic stenosis or formed plaques, and 33 patients had symptomatic stenosis. Patients with symptomatic stenosis have a higher incidence of microemboli than patients with asymptomatic stenosis \( (P = 0.009) \). The microembolus-positive rate increased in patients with unstable plaques \( (P = 0.001) \). Patients who were microembolus-negative were more likely to show a neural function deficient NIHSS (National Institutes of Stroke Scale) score improvement than patients who were microembolus-positive at one week \( (P = 0.026) \). However, we found no significant difference between mRS (modified rankin scale) score \( (P = 0.319) \), relapse, and death \( (P = 0.179) \). The rate of microembolus-positivity increased in patients with atherosclerotic thrombotic cerebral infarction and unstable plaques. Patients who were microembolus-negative were more likely to show an improvement of neural function deficiency than patients with microembolus-positivity at one week \( (P = 0.026) \).

**Key words:** Atherosclerotic thrombotic cerebral infarction; Microemboli; Color trans-cranial Doppler ultrasound; Stroke recurrence