Fibrinogen and high-sensitive C-reactive protein as serologic predictors for perioperative cerebral microembolic lesions after carotid endarterectomy.

BACKGROUND: Neurologic deficit caused by cerebral ischemia defines the outcome of carotid endarterectomy (CEA). Although few patients have clinically evident neurologic deficit, diffusion-weighted imaging (DWI) presents a number of cases with ischemic brain lesions. This study should elucidate preoperative risk factors for perioperative microemboli that cause brain infarction.

METHODS: We studied 183 patients (58 women, 69.2 +/- 12.7 years; 125 men, 69.3 +/- 8.9 years) with high-degree carotid artery stenosis. DWI was performed before and after CEA to analyze new cerebral ischemia. Blood samples were obtained before operation to measure fibrinogen and C-reactive protein (CRP), and preoperative high-sensitive CRP (hsCRP) was analyzed in 30 consecutive patients.

RESULTS: Postoperative DWI revealed new ipsilateral ischemic lesions in 41 patients (22.4%), and eight (4.4%) showed new neurologic deficit. Preoperative fibrinogen levels were higher in patients with new lesions (397.6 mg/dL +/- 104.7 mg/dL) than in those without (324.7 mg/dL +/- 74.2 mg/dL, P < .001). Preoperative levels of hsCRP were also higher in patients with new lesions (7.9 mg/dL +/- 5.2 mg/dL) than in those without (2.8 mg/dL +/- 2.6 mg/dL, P = .004). Significant association was found between fibrinogen and CRP.
(Spearman rho = 0.402; P< .001) as well as hsCRP (Spearman rho = 0.603, P = .003). No association was found between postoperative lesions and CRP (P = .833). CONCLUSION: The present study demonstrates that preoperative levels of fibrinogen and hsCRP are independent determinants for new periprocedural cerebral ischemic lesions caused by microembolic events. There is still not sufficient evidence to recommend measurement of CRP as a prognostic marker for perioperative cerebral lesion.

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