Original article

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PREDICTIVE FACTORS FOR MAJOR ADVERSE CARDIAC EVENTS AFTER CAROTID ENDARTERECTOMY

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Carotid endarterectomy (CEA) is a standard surgical procedure for stroke prevention in patients with carotid artery stenosis but carries a significant risk of major adverse cardiovascular events (MACE).

By integrating clinical risk biomarkers, we aim to improve preoperative risk stratification and contribute to the development of personalized perioperative care strategies in this high-risk patient population.

A total of 110 patients undergoing elective CEA in 2017 were prospectively enrolled. Preoperative clinical data, including soluble urokinase plasminogen activator receptor (suPAR), urea, and left ventricular ejection fraction (LVEF), were collected. MACE, defined as myocardial infarction, arrhythmias, heart failure, stroke, or cardiovascular death, was monitored for 30 days postoperatively. Statistical analysis included univariate and Cox regression modeling to assess predictors of MACE.

Within 30 days post-CEA, 10 patients (9.1%) experienced MACE. These patients had significantly higher suPAR levels (7.04 ± 1.81 vs. 3.15 ± 1.01 ng/mL, $p < 0.001$), elevated serum urea (7.69 ± 2.25 vs. 6.14 ± 1.89 mmol/L, $p = 0.024$), and lower LVEF (48.9 ± 5.43% vs. 55.17 ± 7.8%, $p = 0.007$). Cox regression analysis identified suPAR as an independent predictor of 30-day MACE (HR = 2.144, $p < 0.001$).

Elevated preoperative suPAR, increased serum urea, and reduced LVEF are associated with higher risk of MACE following CEA. Integrating these biomarkers into preoperative assessment may enhance cardiovascular risk stratification and guide perioperative management in high-risk patients.

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