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D-dimer Predicts Short-Term Functional Outcome in Acute Ischemic Stroke

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Background: Increased plasma D-dimer levels have been correlated with adverse outcomes in various clinical conditions. The prognostic value of D-dimer in acute ischemic stroke is limited and remains controversial. The objective of the study was to evaluate the predictive value of plasma D-dimer at admission on short-term functional outcome after acute ischemic stroke.

Methods: We measured fasting plasma D-dimer in consecutive 290 patients (61.7% men, mean age 67.0 ± 12.3 years) within 3 days after the onset of acute ischemic stroke. Plasma D-dimer levels were detected within 24 hours of admission. Outcomes were measured by the modified Rankin Scale (mRS) at 3-months after stroke onset. A good functional outcome was defined as a mRS of 0-2 points, whereas a poor outcome was defined as a mRS of >2 points. Results: The frequency of woman, atrial fibrillation, hypertension, diabetes and involvement of insular cortex, age, and the level of plasma high sensitive C-reactive protein (hs-CRP) and D-dimer were each significantly higher in the poor outcome group ($p<0.05$). The level of albumin, heart rate and the estimated glomerular filtration rate in the poor outcome group were significantly lower than that in the good outcome group ($p<0.05$). In age- and plasma creatinine-adjusted analysis, plasma D-dimer levels were positively correlated with NIHSS scores (partial $r=0.181$, $p<0.01$) and mRS (partial $r=0.257$, $p<0.001$). The cut-off value of D-dimer level for prediction of the poor outcome was 0.35 µg/ml (sensitivity 0.70, specificity 0.63, AUC 0.71). Multivariate logistic regression analysis demonstrated that age (OR, 1.11 for every 1 year; 95% CI, 1.05-1.16, $p<0.001$), the presence of DM (OR, 2.51; 95% CI, 1.11-5.66, $p<0.05$), hs-CRP (OR, 1.16 for every 1.0 mg/dl; 95% CI, 1.01-1.34, $p<0.05$), D-dimer (OR, 1.24 for every 1.0 µg/ml; 95% CI, 1.04-1.49, $p<0.05$), and the involvement of the insular cortex (OR, 3.16; 95% CI, 1.22-8.16, $p<0.05$) were independently associated with poor functional outcome.

Conclusions: Plasma D-dimer is a useful marker for short-term outcome in acute ischemic stroke. D-dimer may have a role in risk stratification for predicting poor outcome.

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Notes:

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Page 101