Copeptin a novel, independent prognostic marker in patients with ischemic stroke

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Background: Early prediction of outcome in patients with ischemic stroke is important. Vasopressin is a stress hormone. Its production rate is mirrored in circulating levels of copeptin, a fragment of provasopressin. We evaluated the prognostic value of copeptin in acute stroke patients.

Methods: In a prospective observational study, using a new sandwich immunoassay, copeptin was measured on admission in plasma of 362 consecutive patients presenting with an acute ischemic stroke. The prognostic value of copeptin to predict the functional outcome (defined as a modified Rankin Scale of ≤ 2 or ≥ 3), mortality within 90 days was compared to the National Institute of Health Stroke Scale Score (NIHSS Score) and to other known outcome predictors.

Results: Patients with an unfavourable outcome and non-survivors had significantly increased copeptin levels on admission ($p<0.0001$ and $p<0.0001$). Receiver operating characteristics to predict functional outcome and mortality revealed areas under the curve (AUC) of copeptin of 0.73 (95%CI 0.67-0.78) and 0.82 (95%CI 0.76-0.89), which was comparable to the NIHSS-score but superior to CRP and glucose ($p<0.01$). In multivariate logistic regression analysis, copeptin was an independent predictor of functional outcome and mortality and improved the prognostic accuracy of the NIHSS to predict functional outcome (combined AUC 0.79 (95% CI 0.74-0.84), $p<0.01$) and mortality (combined AUC 0.89 (95%CI 0.84-0.94), $p<0.01$).

Conclusion: Copeptin is a novel, independent prognostic marker improving currently used risk stratification of stroke patients.