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Titel des Beitrags: Neuropeptide Y - an early biomarker for cerebral vasospasm after aneurysmal subarachnoid hemorrhage.

Abstract:
In the human brain, the potent vasoconstrictive neuropeptide Y (NPY) is abundantly expressed. Neuropeptide Y, which is stored in perivascular nerve fibers of the cerebral arteries, regulates the cerebral vascular diameter as well as cerebral blood flow. However, the role of NPY in the pathogenesis of cerebral vasospasm (CV) related to subarachnoid hemorrhage (SAH) is unclear. We prospectively analyzed and compared the release of endogenous NPY in the cerebrospinal fluid (CSF) of 66 patients with SAH to NPY release in a control group. Additionally, we correlated the levels of NPY in CSF as a predictive biomarker.
for vasospasm, we calculated the sensitivity and specificity as well as the positive and negative predictive values. The NPY levels were significantly higher in the SAH group than in the control group (p < 0.05). Patients with CV showed significantly higher NPY levels than patients without CV during the entire observation period. The NPY levels of the non-CV group dissipated over time, whereas the CV group showed continuously increasing values. The NPY levels from day 4 to 10 were significantly higher in patients with CV-related stroke than in non-stroke patients. Using 0.3 ng/ml as a cut-off value, NPY levels on day 3 predicted the occurrence of CV with a sensitivity and specificity of 82% and 72%, respectively. High NPY levels, starting on day 4, significantly correlated with poor Glasgow Outcome Score grading at the follow-up (p < 0.05). Our data indicate that NPY is involved in the pathogenesis of SAH-related CV and ischemia. Neuropeptide Y represents an early and reliable biomarker for the prediction of CV and consecutive stroke due to aneurysmal SAH.