

FROM PROTEOMICS TO DISEASE PROGNOSIS: IDENTIFICATION OF A MULTIPARAMETER PANEL FOR OUTCOME PREDICTION FOLLOWING ANEURYSMAL SUBARACHNOID HAEMORRHAGE

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Aneurysmal subarachnoid haemorrhage (aSAH) is a devastating event that represents for 5% of stroke. Accurate early prediction of long-term neurological outcome remains imprecise. Using a combination of clinical scores together with brain-injured biomarkers (H-FABP, NDKA, UFD-1 and S100 β) recently identified by proteomic strategies, this study aimed at developing a multiparameter prognostic panel to facilitate early outcome prediction following aSAH.

A series of 140 consecutive patients admitted within 48 hours following aSAH onset were included and blindly separated in 2 independent cohorts. At hospital admission blood concentrations of H-FABP, NDKA, UFD1, Troponin I and S100 β were determined using enzyme-linked immunosorbent assays (ELISA).

In the two independent cohorts, H-FABP, S100 β and Troponin I appeared as promising predictors of unfavourable outcome at 6 months (GOS 1-2-3). A multiparameter optimisation algorithm identified a panel including WFNS (score >2), H-FABP (5.88 μ g/L), S100 β (0.51 μ g/L), NDKA (11.08 μ g/L) and UFD-1 (271.5 μ g/L) were at least 3 parameters should be above the cut-off value to predict unfavourable outcome. The panel specificity and sensitivity were 100% and 70% respectively.

This study demonstrated the power of proteomic strategies for the discovery of biomarkers of cerebral injury. In addition, it highlighted the value of a multiparameter panel to specifically predict unfavourable aSAH outcome.