

Oral Presentation

FROM SPOTS TO EARLY PLASMATIC DIAGNOSTIC MARKERS OF ISCHEMIC STROKE

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Vascular cerebral accident, or stroke, is a leading cause of death and disability in industrialized countries. Currently, a diagnosis of stroke relies on physician evaluation of the patient and neuro-imaging such as CT scan and/or MRI. An early diagnostic plasmatic marker of stroke, ideally capable of discriminating between ischemic and hemorrhagic stroke, would allow immediate therapeutic interventions and hence reduce the extent of damage and risk of death. Here, we describe a proteomic approach using post-mortem cerebrospinal fluid (CSF) to further discover potential biomarkers of stroke. The protein content of post-mortem CSF samples (n=4), a model of massive brain insult, was analyzed by two-dimensional gel electrophoresis. Fifteen polypeptides were shown differentially expressed ($p < 0.05$) and identified by mass spectrometry. Further ELISA validation in stroke plasma samples confirmed the heart-fatty acid binding protein (H-FABP) (n=22, $p < 0.0001$) and three other stroke markers, SM1, SM2 and SM3 (n=18, $p < 0.01$) as being valid plasma biomarkers for the early diagnosis of ischemic stroke.

In conclusion, the validation in plasma samples of proteins found differentially expressed in post-mortem CSF samples demonstrated the value of this sample as a model for the further discovery of plasmatic markers of cerebral injury. Moreover, these results suggest that an extension to this study should be undertaken to assess the acute stroke diagnosis sensitivity of a six-marker panel including H-FABP, the three new stroke markers as well as SAA and At-III fragment, two previously described potential plasmatic biomarkers.

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