

Discovery of new diagnostic markers of stroke.

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Vascular cerebral accident, commonly called stroke, is a leading cause of death and disability in industrialized countries. An early diagnosis associated with an appropriate treatment would reduce the risk of death and enhance the chances of recovery. Currently, the diagnosis of stroke relies on physician evaluation of the patient and neuro-imaging including CT scan or MRI. An early diagnostic marker of stroke, ideally capable to decipher ischemic and hemorrhagic stroke would considerably improve stroke patient management. Using SELDI (Surface Enhanced Laser Desorption Ionisation) technology, we aimed at finding new early diagnosis plasmatic markers of stroke. SAX SELDI patterns of plasma samples from 21 stroke patients were compared to 21 healthy plasma samples. Six peaks were observed to be differentially expressed with significant p values ($p < 0.05$). Subsequently, proteins were stripped from the SAX chips, separated on 1-DE gel and stained using MS compatible silver stain. Following in-gel tryptic digestion, the peptides were analyzed by mass spectrometry (MALDI-TOF-TOF). Four out of the six peaks were identified as Apolipoprotein CI (ApoCI), Apolipoprotein CIII (ApoCIII), Serum Amyloid A (SAA) and an Anti-thrombin III (AtIII) fragment. The Anti-thrombin III fragment was confirmed as being differentially expressed by the cleavable-ICAT technology with a 1.8 fold increase in stroke. Subsequent immunoassay validations of the above potential markers of stroke are currently underway.