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Evaluation of post-surgical cognitive function and protein fingerprints in the cerebro-spinal fluid utilizing surface-enhanced laser desorption/ionization time-of-flight mass-spectrometry (SELDI-TOF MS) after coronary artery bypass grafting: Review of proteomic analytic tools and introducing a new syndrome

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Abstract

Cognitive dysfunction following surgery is a common complication, which increases the incidence of other co-morbid conditions, hospital and health-care costs. The reported rate of the occurrence of post-operative cognitive decline varies with different studies, depending on population profile, type of surgery, definition of cognitive disorder and detection methods, design of study, etc. It remains unclear whether these psychiatric signs and symptoms are direct results of the effects of surgery or general anesthesia. Nonetheless they are more frequent after cardiac surgery and are likely to be multi-factorial, but the patho-mechanisms are not yet fully characterized. This communication provides a synopsis of proteomics tools and delineates novel SELDI-TOF results to evaluate biomarkers in this regard. Presented for the first time is a classification of the clinically relevant forms of post-operative cognitive decline with the advent of a novel subclass. © 2011 Bentham Science Publishers Ltd.

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Keywords

Alzheimer's disease (AD), Bio-marker, Cardiac surgery, Cerebro-spinal fluid (CSF), Cognitive function, International statistical classification of diseases and related health problems: Tenth revision (ICD-10), Mass-spectrometry (MS), Medical classification, Palotásreis syndrome (PRS), Post-operative cognitive decline (POCD), Proteomics, Surface-enhanced laser desorption/ionization time-of-flight (SELDI-TOF)