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Mitochondrial enzyme 17 β -hydroxysteroid dehydrogenase type 10 - A tool to diagnose and to treat Alzheimer disease?

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It is suggested that multifunctional mitochondrial enzyme 17 β -hydroxysteroid dehydrogenase type 10 (17 β -HSD10) can interact with amyloid β via high-affinity binding and that free as well as bound enzyme probably plays a role in the pathogenesis of Alzheimer disease (AD). Our previous experiments revealed that 17 β -HSD10 levels in cerebrospinal fluid are a relatively high sensitive but less specific biomarker of AD (significant changes in 17 β -HSD10 were observed already in people with mild cognitive impairment due to AD, a comparison of AD patients with non-demented controls revealed a sensitivity of 80.0% and a specificity 73.3%; however, a specificity was only 52.5-59.1% when compared to various types of dementia; moreover, enzyme overexpression was also found in people with schizophrenia or multiple sclerosis). Levels of complexes of enzyme and amyloid β in cerebrospinal fluid were not the better biomarker of AD that those of total enzyme with respect to the high-sensitivity of complexes to neuroinflammation. It seems that enzyme overexpression could reflect dysfunctional mitochondria. On the other hand, correlation analysis indicated the significant shifts from negative correlations in controls to positive correlations in AD people between 17 β -HSD10 levels and age or between those and Mini Mental State Examination score. It is thought that 17 β -HSD10 overexpression observed in AD could play the neuroprotective rather than toxic role and that the treatment of AD by means of potent, highly specific inhibitors of enzyme should not be very successful.

Biography

Zdena Kristofikova has graduated from Czech Technical University in Prague (Department of Nuclear Chemistry) and has completed his PhD from the Faculty of Military Health Science, University of Defence in Hradec Kralove, Czech Republic (Department of Toxicology). She works at Prague Psychiatric Centre as a neurochemist and is interested in Alzheimer disease for a long time. She has published 50 papers in reputed journals.

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