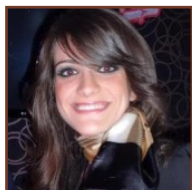


Association between irisin and cognition in a cohort of dementia patients



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Objective: Dementia is a common disabling neurocognitive disorder associated with a progressive deterioration of brain functions. There is an increasingly emerging need to identify specific markers of dementia. The myokine irisin, a novel positive mediator of exercise in the brain, shows neuroprotective functions against Alzheimer's disease (AD). Here, we investigated the association of irisin with cognition in a cohort of dementia patients.

Methods: Cerebrospinal fluid (CSF) and serum irisin levels were evaluated using enzyme-linked immunoassays in patients with AD (n=82), mild cognitive impairment (MCI, n=44), and subjective memory complaint (SMC, n=20). An extensive neuropsychological examination was performed using 18 tests including the Mini Mental State Examination (MMSE), and Frontal Assessment Battery (FAB), two screening tests used to assess global cognitive status. Psychometric tests such as Trail Making Test (version A and B), Rey-Osterrieth Complex Figure, Stroop Color and Word Test, Verbal Fluency test, Digit Span, etc., were administered to evaluate the efficiency of single domain (memory, attention, executive functions, language, and visuospatial abilities).

Results: Decreased CSF and serum irisin levels were observed in AD and MCI patients compared to SMC. A significant correlation has been found between irisin in the CSF and serum and global cognitive efficiency, as well as with specific cognitive domains such as memory, executive functions, attention, visuospatial abilities, and language. Higher levels of CSF and serum irisin were associated with better cognitive performance.

Interpretation: Our results highlight the key involvement of irisin in cognition, indicating its potential role as a cognitive biomarker of AD progression.

Biography:

Dr. Pignataro is a Postdoctoral Researcher and Adjunct Professor at the University of Bari. In 2024, she received PhD degree in "Tissue and Organ Transplantation and Cellular Therapies" from University of Bari. She specialized in 2022 in Cognitive-Behavioral Psychotherapy. She graduated in Clinical Psychology from the University of Chieti in 2014.

For the past 5 years, Dr. Pignataro has been studying the effect of irisin administration on animal models and its involvement in patients with psychiatric, neurodegenerative, and chronic kidney diseases. Study results showed that irisin plays a neuroprotective role with a positive effect on cognition (in mice and in humans).