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Interrelationship between mini-mental state examination scores and biochemical parameters in patients with mild cognitive impairment and Alzheimer's disease

Aim: The aim of the present study was to provide first-hand information about the prevalence of Mild Cognitive Impairment (MCD) and Alzheimer's disease (AD) in Tamil Nadu, a southern state in India and examine if there exists a relationship between cognitive functions and biochemical parameters in these patients.

Methods: Surveys were collected from adults, older men and women (n=3126) from different regions of Tamil Nadu, which were followed up after 12 months for 1337 participants Mini-Mental State Examination (MMSE) scores, lipid profile and liver function tests were carried out in the elderly, MC and AD patients. Based on the MMSE scores, the elderly population was classified into old control (28.97 ± 149; n=1868), MCI (19.58 ± 1.17; n=734) and AD (7.18 ± 1.38, n=304) groups peripheral blood samples were collected after overnight fast from both male and female volunteers (n=40 per group) who were categorized as young adult control, old control, MCI and AD.

Results: AD patients showed lower MMSE scores compared with the young adults, old and MCI groups and MMSE further decreased at follow-up cumination a year later. In the serum of AD patients, high-density lipoprotein, alkaline phosphatase activity and bilirubin levels were lower, whereas low-density lipoprotein, total cholesterol and triglycerides levels were higher MMSE was positively correlated with high-density lipoprotein and negatively correlated with other lipid parameters in AD.

Conclusions: Hypercholesterolemia is a risk factor for AD that might result in neurotoxicity and cognitive impairment. Dysfunction of lipoprotein and heme metabolism might also provide additional targets for AD diagnosis.

Biography

Avathvadi Venkatesan Srinivasan has driven by his quest for excellence joined Madras Medical College (MMC) and received MD (General Medicine) in 1978. Later he pursued and received DM in Neurology from his alma mater. His thirst for research, skills and the latest development in Neurology made him find his way to the National Institute of Neurology and Neurosurgery, his pioneering research work on Neuroleptic Malignant Syndrome got him bestowed with the PhD degree in 2002. It made him the first ever recipient in Neurology from the Tamil Nadu Dr. M.G.R. Medical University, since its inception in 1988. His path breaking research (6 papers) in Phantom limbs, Stroke etc., with Padma Bhusan Dr. VS Ramachandran, Director, Center of Brain and Cognition, University of San Diego remain acclamatory to his undisputed authority in Behavioral Neurology and Movement disorders. He authored more than 100 scientific papers; dozens of his other work have found places in reputed medical journals and has published 12 chapters. His research papers presented, won acclaims in 60 National conferences and in 25 International conferences held in UK, USA, Japan, Australia, China, Europe and other countries. He is the only one from India to collaborate with Dr. VS Ramachandran, who is the first recipient of Padma Bhusan for his contribution to Neurosciences.

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