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Circulating signatures in patients with parkinson'disease – a concrete search

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Parkinson's disease (PD), the second most common neurodegenerative disorder affecting, more severely, the aged population is a complicating disease in terms of diagnosis and management. Many investigations have identified biomarkers for accelerating improved diagnosis and tracking of the disease. However, many of them require sound technical expertise and expensive modes of assessment in addition to the problem of the inadequate/lack of accessibility of the brain tissue of PD patients. In view of such scenario we did investigate biochemical and molecular analyses of blood samples from PD patients and found potential candidates which could be validated as peripheral markers for implication in risk assessment, diagnosis and also in assessing the course of the treatment. Understanding the robust link of oxidative stress and neural cell damage in the neurodegenerative process, we assessed the mRNA expression of reportedly highly vulnerable water channel, aquaporin (AQP4) and Phosphatidyl ethnolamine binding protein (PBP), brain derived neurotrophic factor (BDNF) and tropomyosin receptor factor (NTRK2) in the blood samples of PD and non-PD. The study included 140 PD patients and 70 healthy controls. RNA isolation was carried out using blood samples of the subjects recruited in the study and used for qRT-PCR analysis of AQP4, *Tyroine hydroxylase* as well as PBP. The data were significantly evaluated with SPSS/10 software. Hypothesis testing method was performed and p values of less than 0.05 were considered to indicate statistical significance. The mRNA expressions of AQP4 and *TH* were found to be reduced whereas that of PBP was found to be elevated when compared with those of healthy control samples. Further, NMR and MS analyses of the lipid content of the samples had surprisingly revealed a new candidate molecules exclusively present in the PD population. The selected PD candidate genes in the study are anticipated to provide valuable resources for developing and understanding of the molecular mechanism associated with PD and for discovering potential diagnostic/therapeutic/pathological markers for PD, as it is a widely accepted fact that peripheral changes could be considered as marker of brain changes in PD patients.

Biography

AJ Vanisree, Assistant Professor in Biochemistry, University of Madras had completed Ph.D (2000) in the field of lung cancer. Her Post-doctoral works revolved in the area of gene synteny and immunosuppressant in the reputed National Institutes. After joining University of Madras in 2004, her research interests are focused in the arena of neuro-oncology and neurodegeneration. She had guided more than 8 students for their Ph.D and 30 M.phil degree candidates. She has more than 29 National and international publications in peer reviewed journals. She also had refereed research articles in reputed journals pertained to neuroscience research. Her research findings are presented by her as invited talks in many national and International conferences. She and her lab students have received best paper awards in science meetings. She has funded grants from ICMR, DST and consultancy projects.

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