1. Parkinson’s disease - Perspectives from Alpha-synuclein related pathogenesis and current research

Muralidhar Hegde

We are working on the molecular mechanisms of neurodegenerative illnesses, with a focus on amyloid proteins such as alpha-synuclein, genomic damage and neuronal defects in repair in Parkinson's disease, stroke, and amyotrophic lateral sclerosis (ALS). The aetiology of neurodegenerative illnesses is heavily influenced by DNA repair inhibitions/deficiencies. Our recent research focuses on defining the function of the TDP-43 ALS-linked RNA binding protein in DNA double-strand break repair and evaluating the theory that TDP-43's nuclear clearance and aggregation is a major factor in cell death in Parkinson's disease. Amyloid proteins' genotoxicity can be prevented by natural substances [1]. We are also studying the activation of mitochondrion-dependent programmed cell death (PCD) pathways contributing to the death of substantia nigra pars compacta dopaminergic neurons (PD) apart from key molecular components of this pathogenic cascade including SIRT1 which can activate PGC-1, a coactivator for the PPAR (peroxisome proliferator-activated receptor) Gamma. (PPARG) and about ROS defence system's genes that can be regulated by PGC-1a [2]. PGC-1a has also been demonstrated to increase the expression of ROS-detoxifying genes including SOD1/SOD2 and UCP2 in order to protect WT brain cells from oxidative stress. By boosting mitochondrial gene expression through nuclear respiratory factor 1 (NRF-1) and nuclear-encoded mitochondrial transcription factor A (TFAM), SIRT1 may potentially deacetylate PGC-1 to drive mitochondrial biogenesis leading to novel therapeutic strategies [2].
II. Epidemiology, Diagnosis and Current treatment modalities for Parkinson’s Disease.

Rukmini Mridula Kandadai, 1

With an incidence of 52.85/100,00 in India, Parkinson's disease (PD) is the second most prevalent neurological disease worldwide. Most of the previous ten years have been spent focusing on the motor symptoms of PD, particularly tremor, rigidity, postural instability, and bradykinesia. It is now more widely acknowledged that the condition has more non-motor symptoms and is more widespread. The non-motor symptoms (NMS) of Parkinson's disease (PD) are prevalent at all disease stages, frequently go unrecognized and are a significant source of disability [3]. To improve functional result, these symptoms must be identified and treated. For the treatment of motor symptoms, deep brain stimulation (DBS) of the bilateral subthalamic nucleus (STN) or globus pallidus is more effective than oral dopaminergic drugs [4].
III. Outcome of a clinical pilot study in patients with Parkinson’s disease using AFO-202 strain of *Aureobasidium pullulans* produced beta 1,3-1,6-glucan (Nichi BRITE)

Vidyasagar Devaprasad Dedepiya

An evaluation of the Parkinson's disease-modifying effects of *Aureobasidium pullulans* AFO-202 strain produced beta-glucan (Nichi BRITE B-Glucan). Based on the earlier study of these beta glucans in autism spectrum disorder (ASD) in which there has been improvement in clinical symptoms with regulation of gut dysbiosis especially the control of gut Enterobacteriaceae responsible for the production of curli and amyloid-alpha-synuclein, this pilot clinical study was conducted in Parkinson’s disease patients. There was positive outcome in terms of improvement in Unified Parkinson’s Disease Rating Scale (UPDRS) scale, Constipation Severity Score, Magnetic Resonance Imaging (MRI) of brain based Parkinsonism Index (MRPI), Serum Creatinine Kinase, Fasting, Post-prandial blood sugar, HbA1c and Lipid levels in blood in five of the eight patients who completed the study [5]. We are planning to conduct larger clinical studies in which the effects of these Nichi BRITE B-Glucans on the gut microbiome as well as volumetric MRI in Parkinson’s disease patients will be performed.

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IV. Disappearance of hand tremor and walk restoration in 104 years, old post-Covid.

Ezio Gagliardi 1

Our experience on disappearance of hand tremor and walk restoration in 104 years, old post-Covid Parkinson’s disease patient from Italy after consumption of Nichi BRITE B-Glucan. The patient had problems in coherence, cognition and memory which greatly improved after continuous dose escalated consumption of Nichi BRITE B-Glucan and the patient could regain memory of even her World War II days and she recently celebrated her 105th birthday with improved health.

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