

Dementia and Alzheimer's Disease

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Reduction of Alzheimer's disease prevalence and progression using multi-target therapeutic strategies

Prevalence of Alzheimer's disease and Risk Factors: Alzheimer's disease (AD) is a neurodegenerative disorder characterized by progressive and irreversible nerve cell death throughout the brain including cerebral cortex, basal forebrain and hippocampus thus, leading to memory loss and cognitive impairment. It represents a pressing worldwide health problem with major socioeconomic burden. The disease is ultimately fatal and cell loss progress finally to a kinetic - mute state. Mutation in genes which increase production of amyloid β -peptides as well as which promote amyloid deposition, neurotoxicity, oxidative stress, neurofibrillary tangle formation, and increasing brain inflammation are reported to be associated with the disease. Alzheimer's disease progresses gradually, brain shrinks dramatically over time but still there is a lack of data about its progression. Scientists hope to model stages for AD for more prediction of the disease progression, expectation of its symptoms and to enhance the power to find real treatment. Major attention has been paid to AD risk factors especially modifiable ones as heavy smoking, excessive alcohol drinking and low education as well as cognitive and physical inactivity. History of depression and stress has been also suggested as possible risk factors, in addition to several environmental agents as dietary and malnutrition factors, metals and pesticides as well as brain injuries. Diagnosis mainly based on clinical assessment; however lab tests and neuroimaging are used to exclude other disorders.

Multi-target Therapeutic Strategies: For the complexity involved in the mechanism of AD progression consequently, multi-target therapeutic strategies are a must for providing symptomatic and disease modifying benefits. Lifestyle and healthy aging through reducing stress and increasing cognitive engagement, physical activities, healthy food as well as dietary supplementation of natural antioxidants, vitamins, polyphenols, and zinc in combined treatments showed marked protective effects rather than individual

treatments. The deleterious effect of stress on the brain can be also counteracted by using both epigallocatechin-3-gallate (EGCG) and diazepam. In experimental AD models, multi-target therapeutic strategies showed promising results and provided protection especially in the presence of different risk factors as stress, isolation and protein malnutrition. Moreover, the impact of EGCG, cocoa, pomegranate, coenzyme Q10, wheat grass, propolis and vinpocetine either each alone or in combination can greatly enhance the protective power of physical and mental activity. On the other hand, there are many challenges to developing vaccines that help to prevent the disease in the early stages, which should be efficacious regardless of patient immune status.

Speaker Biography

Azza A Ali has completed her PhD specialized in Pharmacology and Toxicology from Faculty of Pharmacy, Cairo University, Egypt. She developed research line of behavioral pharmacology in Egypt and participated as Advisory Board Member of the Arab Association for Pharmacy Development and its conference (AIPC 2019). She is member of many scientific societies as (AAPS) and Alzheimer's Association (ISTAART). She is also an Editorial Board Member of many international Journals as Brain Disorder & Therapy, Acta Psychopathologica, EC Pharmacology and Toxicology as well as Organizing Committee Member and Chairperson at many international Conferences as the International Conference on Brain Disorders & Dementia Care, Canada (2017) and International Conference on Parkinson's Disease & Movement Disorders, USA (2017, 2018). She published more than 60 papers in reputed journals, supervised and discussed more than 90 PhD and MSc thesis and actively participated by workshop, oral and posters presentations at many international conferences especially on Dementia and Parkinson's disease and in the Alzheimer's Association International Conference (AAIC 2016, 2017). She has many appreciation certificates and certificate of best presentation award at 19th International Conference on Environmental Pollution and Pollution Control, London, UK (ICEPPC 2017). Now she is a Head of Pharmacology and Toxicology Department and Member of the Committee for the Promotion of Professors at Al-Azhar University, Egypt.

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