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Chieti, Italy

2019 Part the Cloud: Translational Research Funding for Alzheimer's Disease (PTC)

Extenzin-Based therapy for MCI subjects

This phase II clinical trial will determine if zinc therapy will slow or prevent mild cognitive impairment from progressing to Alzheimer's disease.

PI

- Ph.D., Università G. D'Annunzio (UdA), School of Medicine, Chieti, Italy, 1998
- Deputy Director of CESI-MET Center of Excellence on Aging and Translational Medicine, UdA, Chieti, Italy since 2016

STUDY

- CADRO category: Translational Research & Clinical Interventions
- Dr. Sensi is also the current recipient of the Association's GEENA-Q ([GAAIN](#) exploration to evaluate novel Alzheimer's queries) award.

Background

Past studies suggest an association between metal imbalances in the body (such as iron, copper etc.) and neurological disorders, including Alzheimer's, Parkinson's disease and amyotrophic lateral sclerosis. Levels of free copper (copper that is not bound to proteins) has been shown to be increased in the brain and blood of people with Alzheimer's. One type of free copper, called nCp-Cu (Cu not bound to a protein called ceruloplasmin) can be particularly harmful at high levels. This type of copper can cross the blood-brain barrier—a highly selective barrier which filters large particles from the blood and does not allow them to enter the brain—and it can attach to beta-amyloid or tau proteins in the brain. nCp-Cu when bound to beta-amyloid or tau may lead to brain cell death. Several studies have seen that mild cognitive impairment (MCI) may progress to Alzheimer's more quickly when nCp-Cu levels are high.

A genetic condition known as Wilson's disease is characterized with high nCp-Cu levels in the blood. Currently, zinc therapy is used to treat this disease. Zinc reduces the body's capacity to absorb copper, restoring healthy levels and drawing copper out from tissues, including the brain.

Research Plan

Dr. Stefano Sensi and colleagues will perform a phase 2 clinical trial evaluating zinc therapy (Extenzin) in 215 people who have MCI and are at risk of developing Alzheimer's disease. The researchers will determine if daily zinc therapy delays the progression of MCI to Alzheimer's, and identify genetic factors that may help predict a person's response to zinc therapy. Dr. Sensi also plans to evaluate nCp-Cu as a new biological marker related to risk associated with Alzheimer's disease.

Impact

Zinc therapy is effective at restoring healthy copper levels in people with Wilson's disease. By applying this similar approach to Alzheimer's, if successful, the study results could advance this novel potential therapy benefiting Alzheimer's disease.