**Current Status of Effectiveness of Electric Field and Magnetic Field Devices in Delaying Progression of Alzheimer’s Disease**

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**ABSTRACT**

Alzheimer's Disease (AD) is a devastating neurodegenerative disorder characterized by cognitive decline and memory loss which results in the difficulty in doing essential task for living a life. On molecular level, aggregation of β-amyloid peptides in frontal cortex and hippocampus is still best-known cause for development of AD. So, obvious and proven effective strategy to stop the progression of AD is promotion of folding and inhibition of aggregation of β-amyloid peptides. Application of electric field and magnetic field alters the orientation and aggregation of such molecules in the brain but at the same time Neurons generate electric and magnetic fields as a result of the flow of electrical currents through their membranes and synaptic connections. Applied fields and self-generated fields interact and helps in delaying the progression of AD. This review study highlights the effectiveness of different applied fields at varied frequency and magnitude. In majority of trials, Magnetic fields are applied using Transcranial Magnetic Stimulation (TMS) which requires high magnitude current to produce required magnitude of magnetic field and Electric fields are produced using Deep Brain Stimulation (DBS). We have discussed briefly about other methods (Magnetic Nano particles, Quantum dots) where frequency and magnitude cannot be varied. Less specified capability of devices to target a brain circuit using fields is major cause of side effects. In this study, we have also discussed the side effects of each type of field and possible reason for occurrence of particular side effect.

Keywords: Alzheimer’s Disease; Magnetic Field; Electric field; Neurostimulation; Brain Implants;