

## **ADUCANUMAB AND ITS USES IN TREATMENT OF ALZHEIMERS DISEASE**

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Alzheimer Disease (AD) is a progressive, degenerative disorder that attacks the brain's neurons resulting in loss of memory, cognition, language skills & behavioral changes. Among the people of age seventies- 61% die of AD. A "Game Changer" drug named Aducanumab has been recently discovered that acts on  $\beta$ -amyloid plaques and neurofibrillary tangles that cause synaptic dysfunction and neurodegeneration leading to AD. Aducanumab is a human monoclonal antibody that enters the brain, bind parenchymal Amyloid- $\beta$ , and reduce soluble and insoluble Amyloid- $\beta$  in a dose-dependent manner.

A recent experimental study was presented in the "12<sup>th</sup> international Conference on Alzheimer's disease, Parkinson's disease and Related Neurological Disorders", 2016; that aimed at the effects of Aducanumab. A current study was performed on 166 men and women in early stages of AD (having evidence of plaque building). They were divided into 4 different groups and given intravenous doses of Aducanumab – low dose (3mg/kg), moderate dose (6 mg/kg), high dose (10 mg/kg) and placebo dose. The experiment was carried out for a year and at the end brain scans (Computed Tomography, Positron Emission Tomography Imaging and Radioactive tracing) were performed.

Group of people that were given high dose treatment (10mg/kg) was presented with marked improvement in memory and cognition during various tests like "Mini Mental State Exam" and "Clinical Dementia Rating". Group of people with moderate and low dose showed negligible improvement whereas with placebo dose there was no effect at all. Common side effect included headache and brain swelling only in people with Apolipoprotein E4-gene but the minimal side effects of the drug were overlooked against the highly effective positive effects.

Aducanumab has showed a good dose dependent effect in treatment of AD, that probably, will be used widely in soon future. Also, on 1<sup>st</sup> June 2016 the drug got Prime Status in Europe in treatment of AD and on 1<sup>st</sup> September 2016, it received fast track designation for treatment of early stages of AD in USA.