Alzheimer's Disease and Dementia, Neurodegenerative Diseases

PROPOSING A NEW CONCEPT: NEUROGENESIS HYPOTHESIS

WITH A CASE STUDY- PHASE 2A CLINICAL TRIALS OF NA-831 FOR THE TREATMENT OF ALZHEIMER`S DISEASE

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In the hippocampus, new neurons are generated throughout life via a process called adult hippocampal neurogenesis (AHN). In mild cognitive impairment (MCI) and mild to moderate AD (early AD), AHN is reduced suggesting that AHN impairment compromises hippocampal function. Accordingly, augmenting AHN could help prevent or slow cognitive decline in MCI and early AD.

NA-831 is a small drug molecule, which activates synaptic AMPA receptors, and increases the expression of BDNF (brain derived neurotrophic factor). BDNF is crucial in synaptic plasticity, learning and memory formation in the hippocampus. NA-831 restores neurogenesis by increasing the number of DCX+PCNA+ neuroblast cells.

A randomized clinical trial of NA-831 was conducted in 32 patients with MCI, who received 10 mg of NA-831 or placebo orally per day; and 24 patients with mild and moderate AD, who received 30 mg of NA-831 or placebo orally per day for 24 weeks.

RESULTS:

NA-831 provided a significant delay in cognitive decline in MCI as measured by ADAS-Cog-13, an average score difference of 3.4 compared to placebo ($p = 0.01$; ITT) after 24 weeks of treatment.

Similarly, NA-831 delayed cognitive decline in early AD, an average score difference of 4.1 com-pared to placebo ($p = 0.001$; ITT). CIBIC-Plus showed 78 % of the study participants receiving NA-831 improved ($p = 0.01$; ITT).

NA-831 was well-tolerated at 30 mg/day for 24 weeks, and no serious adverse events were observed.

The Neurogenesis Hypothesis for AD, and details of these Phase 2A clinical trials will be presented and discussed.