Olfactory deficits and donepezil treatment in cognitively impaired elderly

https://neurodegenerationresearch.eu/survey/olfactory-deficits-and-donepezil-treatment-in-cognitively-impaired-elderly/

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Country

USA

Title of project or programme

Olfactory deficits and donepezil treatment in cognitively impaired elderly

Source of funding information

NIH (NIA)

Total sum awarded (Euro)

€ 2,965,456.88

Start date of award

15/06/2013

Total duration of award in years

4

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords

Acquired Cognitive Impairment... Aging... Alzheimer's Disease... Alzheimer's Disease including Alzheimer's Disease Related Dementias (AD/ADRD)... Behavioral and Social Science... Brain Disorders... Clinical Research... Clinical Research - Extramural... Dementia... Neurodegenerative... Neurosciences... Patient Safety

Research Abstract

DESCRIPTION (provided by applicant): Olfactory identification deficits occur in patients with Alzheimer’s disease (AD), are associated with disease severity, predict conversion from mild cognitive impairment (MCI) to AD and are associated with healthy elderly subjects developing MCI. Odor (olfactory) identification deficits may reflect degeneration of cholinergic inputs to the olfactory bulb and other olfactory brain regions. Acetylcholinesterase inhibitors (ACheI) like donepezil show modest effects in improving cognition but can be associated with adverse effects and increased burden and costs because of the need for prolonged, often lifelong, treatment. Converging findings on odor identification test performance (UPSIT, scratch and sniff 40-item test) from four pilot studies, including two of our own, suggest that acute change in the UPSIT in response to an anticholinergic challenge (atropine nasal spray), incremental change over 8 weeks, and even the baseline UPSIT score by itself, may predict cognitive improvement with AChel treatment in MCI and AD. If change in odor identification deficits can help to identify which patients should receive AChel treatment, this simple inexpensive approach will advance the goal of improving personalized treatment, improve selection and monitoring of patients for AChel treatment, reduce needless AChel exposure with risk of side effects, and decrease health care costs. Project goals are to evaluate change in odor identification deficits as predictors of improvement in 100 patients with MCI (Study 1) and in 100 patients with mild to moderate AD (Study 2) during open treatment with the AChel, donepezil. In both studies, we hypothesize that the decrease in UPSIT scores from pre- to post-atropine nasal spray challenge conducted at baseline will be associated with cognitive and global improvement from baseline to both 26 weeks and 52 weeks of donepezil treatment. The rationale is that those MCI patients who have AD brain pathology will have a cholinergic deficit and worsening of odor identification with the acute atropine challenge, and these patients will be more likely to improve with AChel treatment. In both studies, we hypothesize that the increase in UPSIT scores from baseline (pre-atropine) to 8 weeks of donepezil treatment will be associated with cognitive and global improvement from 0 weeks to both 26 weeks and 52 weeks of donepezil treatment. This is the first systematic effort to evaluate the clinical utility of short-term changes in odor identificatin deficits to predict long-term cognitive and global improvement on AChel treatment, and includes the first use of an anticholinergic challenge that has a sound neurobiological basis.

Lay Summary

PUBLIC HEALTH RELEVANCE: This project will evaluate odor identification deficits as predictors of improvement in 100 patients with amnestic mild cognitive impairment (MCI, Study 1) and in 100 patients with mild to moderate Alzheimer’s disease (AD, Study 2) who receive open label treatment with the acetylcholinesterase inhibitor medication, donepezil.

Further information available at:

Types:
Investments > €500k

Member States:
United States of America

Diseases:
Alzheimer's disease & other dementias

Years:
2016

Database Categories:
N/A

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N/A