

Examining safety and efficacy of cognitive enhancers for Alzheimer's disease

BACKGROUND:

Alzheimer's disease (AD) is the most common form of dementia, accounting for more than 60% of diagnoses. AD is progressive and debilitating, and life expectancy following diagnosis is generally 3-9 years. Treatment options for AD are limited; current treatments include a range of medications known as 'cognitive enhancers', which are administered to treat cognitive symptoms. These medications include donepezil, galantamine, rivastigmine, and memantine, administered either individually or in combination.

RESEARCHER QUESTION:

For this study, an international team of researchers from Canada, Greece, and the United Kingdom sought to assess the safety and efficacy of cognitive enhancers for AD using patient characteristics.



The team identified nine different individual or combination treatment regimens, tested in comparison with other cognitive enhancers or placebo.

“Getting access to IPD enabled us to obtain data that had not been reported in the original publication.” - Dr. Areti Angeliki Veroniki

FINDINGS

The research team's findings indicate that participants with moderate to severe cognitive impairment reported greater improvement with donepezil and memantine, whether administered individually or in combination. The cognitive enhancer found to be least effective was oral rivastigmine. Participants reported that cognitive enhancers were well tolerated generally. The team encountered some challenges with accessing full IPD, and found that in general, newer studies with larger sample sizes and smaller treatment effects were more likely to have IPD available.

IMPACT

Since publication in the BMJ, this paper has been cited more than 40 times and is currently listed in the top 25% of research outputs tracked by Altmetric.

In a presentation to Vivli, corresponding author Dr. Areti Veroniki noted that the team's findings indicate that the choice among the different cognitive enhancers may depend on the patient's characteristics. People with AD require personalized medicine to optimize management of their condition, and IPD can support tailored decision-making for patients, clinicians, and carers.



Vivli

CENTER FOR GLOBAL CLINICAL RESEARCH DATA

ALZHEIMER'S DISEASE DATA REUSE

RESEARCH PROCESS:

To study the comparative efficacy and safety of cognitive enhancers, the research team collected data from 80 randomized controlled trials (RCTs) including more than 21,000 adults with AD, as well as 12 RCTs which provided individual patient data (IPD) for nearly 7,000 patients, including two studies held on the Vivli database of clinical trial data. They used these data to conduct a two-stage random-effects IPD Network Meta-Analysis, and assessed findings using the Confidence in Network Meta-Analysis (CINeMA) assessment.

NEXT STEPS:

READ MORE

[Comparative safety and efficacy of cognitive enhancers for Alzheimer's dementia: a systematic review with individual patient data network meta-analysis](#) (BMJ)

[Presentation of study at the Vivli Annual Meeting](#) (YouTube)

[Find out more about requesting data from Vivli.](#)