

Study reveals combined use of Donepezil/Memantine increases probability of five-year survival in Alzheimer's patients

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Alzheimer's disease is the world's most common neurodegenerative disease, affecting more than 50 million people globally. Alzheimer's

disease is also among the most fatal, landing as one of the top five causes of death worldwide. However, most currently available treatments are limited to alleviating the disease's symptoms.

Now, a new study led by Chapman University researchers has explored the efficacy of using two existing Alzheimer's disease drugs simultaneously to reduce mortality. It is one of the largest and most comprehensive Alzheimer's treatment studies to date.

The study, "[Combine use of Donepezil and Memantine increases the probability of five-year survival of Alzheimer's disease patients](#)", released in *Communications Medicine*, finds that combining the use of the two most common Alzheimer's disease drugs, Donepezil and Memantine, could extend the lives of approximately 303,000 people with Alzheimer's Disease living in the U.S. beyond five years from diagnosis.

The senior author is Cyril Rakovski, Professor and Program Director for the Faculty of Computational and Data Sciences.

The researchers studied the anonymized medical data of 12,744 patients who were diagnosed with Alzheimer's disease, focusing on patients receiving the three most common treatments to treat the disease: the acetylcholinesterase inhibitor Donepezil (28.94%), the NMDA receptor antagonist Memantine (10.7%), and combined use of Donepezil and Memantine (9.11%).

Approximately half of the patients (45.54%) received no drug treatment, and this group served as a control. The researchers tracked the patients' outcomes five years later. They found that the [mortality rates](#) for patients on no [drug treatment](#), only using Memantine, and only using Donepezil were 36%, 32%, and 42% higher than combined use, respectively.

Then, the authors implemented advanced statistical techniques to achieve unbiased estimates of treatment effects and ensure the robustness of results.

With these analyses in place, they confirmed a significant, beneficial drug-drug interaction, indicating that the combined use of Donepezil and Memantine significantly increased the probability of five-year survival of Alzheimer's disease patients compared to no drug use and single drug use of Memantine and Donepezil. In particular, compared to no [drug](#) use, the combined use of Memantine and Donepezil significantly increased the probability of five-year survival by 0.05 (6.4%).

"The research underscores the importance of the combined treatment, suggesting it can extend patients' lives and reduce [medical costs](#)," said the lead author, Dr. Ehsan Yaghmaei.

"This comprehensive causal inference study, using a large, high-quality medical database, provides strong evidence for adopting the combined treatment approach to improve patient outcomes and health care efficiency." Dr. Yaghmaei and others at Chapman University collaborated with researchers at UNC Chapel Hill's School of Medicine, the Children's Hospital of Orange County (CHOC), and UC Irvine's School of Medicine.

The findings suggest the importance of re-evaluating current treatment protocols for Alzheimer's disease, and offer hope that this new standard of care could help the millions affected by this devastating disease.

More information: Ehsan Yaghmaei et al, Combined use of Donepezil and Memantine increases the probability of five-year survival of Alzheimer's disease patients, *Communications Medicine* (2024). [DOI:](#)

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