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## Differential effects of current specific treatments on behavioral and psychological symptoms in patients with Alzheimer's disease: a 12-month, randomized, open-label trial.

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### Abstract

**BACKGROUND:** Behavioral and psychological symptoms of dementia (**BPSD**) occur in up to 80% of Alzheimer's disease (AD) patients and represent one of the most common reasons for early institutionalization and increase in management costs.

**OBJECTIVES:** This study evaluated the effects of four drugs (**memantine**, donepezil, rivastigmine, galantamine) in **BPSD** in AD patients.

**METHODS:** This was a prospective, longitudinal, randomized, open-label, 4-arm, parallel-group, 12-month clinical trial carried out in 177 AD patients. The severity of **BPSD** was evaluated at baseline and after treatment with **memantine** (n = 48), donepezil (n = 42), rivastigmine (n = 46), and galantamine (n = 41), by using the Neuropsychiatric Inventory (NPI) and the Behavioural Pathology in Alzheimer's Disease (BEHAVE-AD) scales.

**RESULTS:** The NPI and BEHAVE-AD total scores improved from baseline to month 12 in all groups. The improvements in both scales were statistically significant in the **memantine**, donepezil, and rivastigmine groups, but not in the galantamine group. Responder analyses showed that treatment with **memantine** and rivastigmine resulted in more patients improving on NPI and BEHAVE-AD score, respectively. Agitation/aggression was the NPI item with the highest improvements (significantly versus baseline in the **memantine** and in the rivastigmine groups), while aggression and anxiety/phobias were the mostly improved BEHAVE-AD items (significantly in the rivastigmine group for both and in the rivastigmine group only for anxiety/phobias). All treatments were well tolerated: most of adverse events reported were transient and of mild-to-moderate intensity.

**CONCLUSIONS:** This study suggests that specific drugs for AD, especially **memantine** and **rivastigmine**, may be effective in the improvement of **BPSD** in patients with mild to moderate AD, without major side effects.

**KEYWORDS:** Alzheimer's disease; behavioral and psychological symptoms; donepezil; galantamine; **memantine**; rivastigmine

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