

# Effect of donepezil on sleep and activity in Alzheimer's disease: actigraphic and polysomnographic assessment

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## Abstract

**Objective:** To examine the effect of donepezil on sleep and activity in patients with Alzheimer's Type Dementia (ATD) using polysomnography and actigraphy.

**Methods:** Ten patients with mild to moderate ATD (mean Clinical Dementia Rating score:  $1.5 \pm 0.5$ , mean age  $76 \pm 6.2$  years) were studied. Alzheimer's Disease Assessment Scale-cognitive component-Japanese version (ADAS-Jcog), polysomnography, and 7-day recording of actigraphy data were performed at baseline. Following baseline assessment, 5 mg of donepezil was administered in the morning for 6 weeks. Following this treatment period, the same examinations were performed in all patients.

**Results:** After 6 weeks treatment with donepezil, daytime activity increased significantly after 6 weeks. Similarly, rapid eye movement (REM) sleep ( $p < 0.01$ ) and sleep efficiency ( $p < 0.05$ ) increased significantly compared with baseline. Although the ADAS-Jcog score did not decrease significantly, there is significant positive correlation between the decrease in the ADAS-Jcog score and the increase in daily activity.

**Conclusion:** Donepezil treatment enhances daytime activity, sleep efficiency and REM sleep. In addition, there is significant positive correlation between the decrease in the ADAS-Jcog score and the increase in daily activity. These results suggest that donepezil activates central cholinergic systems and reduces daytime sleepiness. Moreover, reduction of daytime sleepiness may cause an increase in attention and improve cognitive abilities.

**Key words :** Donepezil, Sleep, Motor activity, Alzheimer's type dementia