

## ORIGINAL PAPER

### Serum Leptin Levels in Patients with Alzheimer's Disease

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#### Abstract

**Introduction:** Leptin receptors have been identified in many peripheral tissues as well as the CNS including the hippocampus, which is particularly vulnerable in Alzheimer's disease (AD). Animal data shows that leptin may be implicated in the pathophysiology of AD. The aim of this study was to examine if there is any differences in serum leptin levels between patients with AD and normal controls.

**Material and methods:** Ninety patients with AD and 95 normal controls matched for age and gender were included. The diagnosis of Alzheimer dementia was based on standard criteria provided by the ICD-10 system. Blood samples were frozen at -80°C until analysis. Leptin levels were measured using a human leptin enzyme linked immunosorbent assay (ELISA) kit.

Differences in leptin levels were assessed between the two groups using the Mann-Whitney method. Linear regression analysis was also used to adjust for characteristics shown to be associated with leptin and cognitive decline.

**Results:** From the patients with AD, 74 were women and 16 were men (mean age 80.53±6.03, mean body weight 71.49±8.33) and from the control group 78 were women and 17 men (mean age 79.27±6.86, mean body weight 70.23±6.73). Linear regression revealed that the use of antipsychotic drugs was associated with serum levels of leptin ( $p<0.001$ ). Serum leptin levels were, also, significantly lower in patients with AD compared to normal controls (17.89±23.59 in AD patients vs 26.82±17.77 in normal controls,  $p<0.0001$ , Mann-Whitney U).

**Conclusion:** Our study, in accordance with the findings of studies in animal models, provides evidence that leptin may be implicated in the pathophysiology of AD.

**Keywords:** Leptin, Alzheimer, sex