

Poster presentation

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The hypothalamic-pituitary-adrenal (HPA) system function in patients with Alzheimer's disease and the therapeutic implications

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Background

The role of hypothalamic-pituitary-adrenal (HPA) axis have been the subject of substantial studies in conditions such as major depression, posttraumatic stress disorder, and Cushing's syndrome. HPA disturbances have been associated with memory impairments and hypercortisolism with atrophy of hippocampus, a limbic structure strong associated with memory and which function is pivotal for the regulation of the HPA system. The neuropathologic hallmarks of Alzheimer disease are very prominent in the hippocampus. Recent discoveries support the existence of a more complicated relationship between stimulation of brain glucocorticoid receptors and memory performance.

Materials and methods

A meta-analysis was conducted out of the 25 studies identified for this study's needs. The oldest was a study by Raskind et al (1982) and the newest a study by Csernansky et al (2006).

Results

A number of valid tests (DST, CSF cortisol levels, UFC levels and Basal Cortisol Levels) have demonstrated an increased HPA activity in AD patients. Hippocampal atrophy was found to be closely associated with increased HPA activity. Hypercortisolism, in the elderly have shown substantial memory deficits interconnected to a pattern of increasing cortisol levels.

Conclusions

Hyperactivity of the HPA axis in AD leads to memory deficits. More studies of HPA function in normal aging persons, those with mild cognitive impairment and patients with Alzheimer disease, examining pertinent variables such as APOE e4 status, are needed to clarify these new findings. The antiglucocorticoid agents seem to be a promising and effective tool in the treatment of particular conditions such as Alzheimer disease and Mild Cognitive Impairment.

References

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