HIF-1A LEVELS IN PATIENTS WITH ALZHEIMER'S' DISEASE

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Introduction: Dementia is a progressive, insidious, permanent disease which appears by neuronal injury and deteriorates mainly memory, and also cognitive functions, daily life activities. Although there are a lot of etiologies that causes dementia, Alzheimer disease is the most common cause. HIF-1α is a major transcription factor that responds to hypoxia. Beta-side Amiloid Cleaving Enzyme (BACE) gene's promoter is a hypoxia binding element where HIF-1 binds and increases expression of BACE-1. BACE constitutes Amyloid Beta (Aβ) from Amyloid Precursor Protein (APP).

Aim: To evaluate serum HIF-1 α levels in patients with Alzheimer Disease to show the possible link between hypoxia and pathogenesis of the disease.

Methods: We evaluated 36 patients with Alzheimer's disease and 30 controls with normal cognitive functions. Patients who have chronic obstructive pulmonary disease, coronary heart disease; diabetes mellitus or cancer exclude from this study because of these diseases can affect the HIF-1α results. Serum samples collected from patient and control groups then HIF-1α levels measured with ELISA kits. Serums diluted with phosphate buffer before study.

Results: Mean HIF-1α levels were 12 1,9 ng/ml in Alzheimer patients and 13,4 2,3 ng/ml in control group. T test applied and there were no significant difference between two groups (p=0.42).

Conclusions: This is the first study that investigates serum HIF-1α levels of Alzheimer patients. No correlation was found between serum HIF-1 α levels and Alzheimer disease, but further studies with direct measurement of HIF-1 α levels in central nervous system may give more reliable results.