ABSTRACT

EVALUATION OF COGNITIVE EVOKED POTENTIAL P300 AND CORRELATION TO SERUM INSULIN LEVELS IN ALCOHOL DEPENDENCE PATIENTS

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Background:

Alcohol dependence is an increasing burden to the society worldwide. Alcohol dependence causes cognitive impairment . Cognitive evoked potential P300 is impaired in alcohol dependence . Newer cognitive markers for alcohol dependence are emerging. Insulin is a cognitive marker for Alzheimer's disease and Type 2 Diabetes mellitus. Insulin is under research as a cognitive marker for alcohol dependence. It is observed that insulin levels are higher in non diabetic alcohol dependent individuals.

Aim and objectives:

To correlate cognitive evoked potential P_{300} values with serum Insulin level in alcohol dependence individuals and to evaluate whether insulin can be kept as a biomarker for cognitive functioning .

Methods and Methodology:

There were sixty participants in the study. Thirty participants with alcohol dependence were taken as case group and thirty healthy volunteers were taken as control group. Cognitive evoked potential P_{300} was measured in both case and control group. Fasting serum insulin and sugar levels were measured in both the case and the control group.

Results:

The P_{300} latency was prolonged and amplitude was diminished in the case group compared to the control group ($p < 0.0001$) . The serum insulin and sugar levels were raised in the case group compared to the control group($p<0.01$).The serum insulin values correlated significantly with P_{300} latency and amplitude values.

Conclusion:

The patients with alcohol dependence had significant impairment in event related potential P_{300} latency and amplitude when compared with controls. The study group had significant increase in fasting serum insulin and blood sugar levels compared to the control group. There is significant correlation between the P_{300} latency and the serum insulin level and also the P_{300} amplitude and the serum insulin level in the study group. Hence it can be derived that there is cognitive impairment in alcohol dependence and that serum insulin can be used as a cognitive marker in alcohol dependence patients.

Key words:

Alcohol dependence, Cognitive evoked potential, P_{300} latency, P_{300} Amplitude, Serum insulin levels, Blood sugar levels.