Apolipoprotein D Concentration in Parkinson's disease Patients

A thesis submitted for partial fulfillment

Of MD degree in Neurology

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Summary

Parkinson's disease (PD) was found to be the most common neurodegenerative movement disorder (**Balestrino and Schapira, 2019).**

Visual dysfunction is considered a common nonmotor symptom in PD .Visual dysfunction that occurs in PD is subtle and could be demonstrated through the visual evoked potential (VEP) **(He et al., 2018).**

Both oxidative stress (OS) and inflammation are involved in deregulation of plasma membrane lipid metabolism in PD **(Calabrese et al., 2018)**.

Apolipoprotein D (ApoD) is considered an atypical apolipoprotein and its expression has been shown to be induced through oxidative stress **(Do Carmo et al., 2007).**

The aim of this work was to study the ApoD level in PD in comparison to control group and to correlate its level to clinical and visual evoked potential data.

This study included 30 patients of both sexes with diagnosis of PD, selected from neurology department, Fayoum University Hospital. Thirty age and sex matched healthy volunteers was selected as a control .

All patients were subjected to the following:

- Detailed history taking and full neurological examination.
- Assessment of the state and severity of the disease by Unified Parkinson's Disease Rating Scale (UPDRS) , The Hoehn & Yahr scale (H and Y) and Schwab and England Activities of Daily Living (SE-ADL) Rating Scale .
- Assessment of the evoked potentials changes was done using VEP.
- Detection of serum level of ApoD .

Results

The age of the patients group ranged from 35–77 years with mean 53. 6± 12.9 years. The age of controls group ranged between 34–78 years with mean 55.4±13 years.

Male patients with PD were 13 (43.3%) while the females were 17(56.7%). Regarding the controls, males were 12 (40%) and females were 18(60%).

The duration of disease among Parkinson cases ranged from (6 months to 9 years) with mean (3.5±2.8) years.

The side of onset of the symptoms was on the right side in 17 patients (56.7%) and was on the left side in 13 patients (43.3%).

The clinical phenotype was tremors predominant in 11 patients (36.7%) and was rigidity and bradykinesia predominant in 19 patients (63.3%).

The mean total score of UPDRS ranged from 18 to 117 with mean 56.7±29.5,

The mean score of H and Y scale was 2.9±0.69 ranged from 1.5 to 4, and that SE-ADL scale the mean score was (0.64±0.17) with range of 0.3 to 0.9 .

As regard the VEP data the P100 amplitude of patients ranged from 3.35 uv to 8.04 uv with mean 5.7±1.4, however for controls the P100 amplitude ranged from 5.5 uv to 9.04 uv with mean 7.8±1.9.

The P100 latency of patients ranged from 109.4 ms to 130.95 ms with mean 119.6±6.2. As regard controls the P100 latency ranged from 84.6 ms to 98.05 ms with mean 91.5±4.2.

The serum level of Apo D among the patients ranged from 102.31 ng/ml to 122.31 ng/ml with mean 108.9 ±6.4 .That of the controls ranged between 55.1 and 90.98 with mean 75.4±13.7.

There was significant difference between Apo D serum level among the cases and among controls with higher serum level among the cases.

There was a statistically significant difference between cases and controls with lower of P100 amplitude and higher mean of P 100 latency among cases of PD.

There was no statistically significant difference in P 100 amplitude and latency in different genders among the patients or in different side of onset or in different clinical phenotypes.

There was no statistically significant difference in APO D serum level in different genders or in different sides of disease onset.

There was a statistically significant difference between clinical phenotypes of disease and total UPDRS with lower mean among patients presented with tremors.

As regard (H and Y) and (SE-ADL) scales there was no statistically significant difference between them and different clinical phenotypes.

There was a statistically significant difference between APO D serum level and clinical phenotypes with higher mean among patients presented predominantly with bradykinesia and rigidity.

No statistically significant difference was found between VEP (P 100 amplitude and latency) and clinical phenotypes of the disease.

There was no statistically significant correlation with serum level of Apo D and the age of the patients.

There was a statistically significant positive correlation between APO D serum level and the duration of disease.

There was a statistically significant positive correlation between serum level of APO D and severity of disease assessed by total UPDRS and H and Y score.

Correlation between the serum level of APO D and P 100 latency showed that that there was a statistically significant positive correlation between them.

There was no statistically significant correlation between the serum level of APO D and P 100 amplitude.

Correlation between the serum level of APO D and severity of disease assessed by SE-ADL scale showed that there was a statistically significant negative correlation.

There was no statistically significant correlation with (P 100 amplitude and latency) and the age of the patients.

There was a statistically significant positive correlation between P 100 latency and the duration of disease.

No statistically significant correlation was found between P 100 amplitude and the duration of disease.

There was a statistically significant positive correlation between P 100 latency and severity of disease assessed by total UPDRS and H and Y scale.

Correlation between P 100 latency and severity of disease assessed by SE-ADL scale, There was a statistically significant negative correlation.

Correlation between P100 amplitude and severity of disease assessed by total UPDRS, H and Y scale and SE-ADL scale showed that there was no statistically significant correlation.