Study on the vulnerability and risk factors for Alzheimer's disease

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The work was made to study the possible markers for early detection of Alzheimer's disease by pupillary response to diluted tropicamide and immunological markers ; also to study possible risk factors and behavioral manifestations of the Alzheimer's disease. The subjects of the study were four groups; group I with moderate and severe Alzheimer's disease; group II with vascular dementia as a control group; group III with early Alzheimer's disease and group IV who are normal healthy control subjects. The sample of the study was subjected to MMSE, Clinical Dementia Rating for Staging of Dementia "CDR" and pupil assessment for the effect of 0.01% tropicamide. There were statistically significant differences between group I "being the lowest" and the other three groups regarding the mean score of MMSE. There were statistically significant differences between group III and both groups I and II regarding the mean score of CDR. The mean serum level of CD8 in group III was significantly higher than its level in groups I, II and IV. Also, the mean serum level of HLA-DR in group III was significantly higher than its level in group II and IV. The mean ratio of CD4/HLA-DR in group II was significantly higher than that of groups I, III and IV. No significant difference between the mean pupil diameter (in mm) at any different point of time in both the right (Rt.) and left (Lt.) pupils in the 4 studied groups. After 10 minutes from instillation of tropicamide, there was a statistical significant difference between the mean differences in the Rt. pupil diameter (in mm) of groups II and III (1.18+ or- 1.32 and 2.54+ or-1.29, respectively), also, this significant difference was present between group II and I (1.18+ or-1.32 and 2.61 + 1.56, respectively). After 30 minutes, there was a statistical significant difference between the mean differences in the RT pupil diameter (in mm) in group II and I (3.54"2.94 and 6.04"2.43 respectively) (F=3.25, P= 0.028). But after 40 minutes, there was a statistical significant difference between group II and I (4.27+ or- 3.1 and 6.9+ or- 2.3 respectively) and also between group II and III (4.27+ or-13.1 and 6.45+ or- 1.8, respectively). There were significant differences between right and left pupils regarding the mean % of pupil dilatation at each time point (10, 20, 30, 40 minutes) in the four studied groups.