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RELATIONSHIP BETWEEN HEAT SHOCK PROTEIN 70 AND B AMYLOIDS IN PATIENTS WITH ALZHEIMER DISEASE AND VASCULAR DEMENTIA

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Aims: Explore the relationship between levels of plasma $A\beta_{1-40}$, $A\beta_{1-42}$ and heat shock protein 70 (HSP70) in patients with Alzheimer disease (AD) and vascular dementia (VD) and in elderly non-demented controls.

Methods: 23 patients with AD and 21 patients with VD who meet diagnostic criteria of the Diagnostic Statistical Manual 4th edition and 20 control subjects were enrolled, administered the Mini-Mental State Exam (MMSE) and the Activity of Daily Living (ADL) inventory and their levels of plasma $A\beta_{1-40}$, $A\beta_{1-42}$ and HSP70 were measured by sandwich enzyme-linked immunosorbent assay.

Results: The levels of plasma $A\beta_{1-40}$, $A\beta_{1-42}$ and the $A\beta_{1-40}/A\beta_{1-42}$ ratio were not significantly different across groups, but levels of plasma HSP70 in VD patients was significantly higher than in AD patients and in normal controls (3.19 vs 1.91 vs 1.43ng/ml, respectively; $F=6.464$, $P=0.003$). In the AD group MMSE scores were inversely correlated with ADL scores ($r=-0.617$, $P=0.002$) and with levels of plasma HSP70 ($r=-0.437$, $P=0.037$); but HSP70 levels were positively correlated with age ($r=0.616$, $P=0.002$) and with plasma $A\beta_{1-40}$ ($r=0.497$, $P=0.016$) in AD group. In the VD group levels of plasma HSP70 were positively correlated with plasma $A\beta_{1-40}$ ($r=0.436$, $P=0.048$).

Conclusions: Our findings provide further evidence that high plasma HSP70 levels may play a role in the diagnosis and differential diagnosis of AD. HSP70 levels in AD patients is inversely associated with cognitive performance and positively correlated with plasma $A\beta_{1-40}$. Plasma HSP70 in VD patients is significantly elevated and positively correlated with plasma $A\beta_{1-40}$.