

P005 Increased Low density lipoprotein oxidation, but not total plasma protein oxidation, in Alzheimer's Disease.

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The two most common forms of dementia are Alzheimer's disease (AD), and vascular dementia (VaD), with AD being the most predominant form. In recent years the vascular nature of AD, and the potential role that VaD may play in AD, has received increasing attention. In the overlap of biochemical processes and mechanisms which have been identified in AD and VaD, oxidative stress is believed to contribute to the numerous pathologies of both dementias. Oxidative stress is an environment where the balance of pro-oxidant species to anti-oxidant species is altered in favour of the former. Low density lipoprotein (LDL) is susceptible to damage by reactive oxygen and nitrogen species and oxidised LDL is implicated in the early stages of atherosclerosis, which has been associated with AD and VaD. This study assessed protein carbonyl adducts as a marker of oxidative damage on total plasma proteins and isolated LDL in 70 AD patients and 72 age matched controls. Significantly higher LDL protein carbonylation was observed in AD compared to age matched controls (AD: 4.17 ± 0.73 Vs. control: 3.85 ± 0.86 nmol/mg LDL; $p=0.05$, 2 tailed mann-whitney), while no difference was seen in total plasma protein carbonyl content (AD: 3.88 ± 0.31 Vs. control: 3.98 ± 0.48 nmol/mg protein). The results further support the view that oxidation events in AD may be specific in nature, and represent crucial functional changes to oxidised proteins, rather than random global events. This research was funded by the Alzheimer's Society.