HDL, LDL AND TOTAL CHOLESTEROL (TC) IN MILD COGNITIVE IMPAIRMENT (MCI) AND ALZHEIMER’S DISEASE (AD) - RESULTS FROM THE ILSE-STUDY

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Introduction: Epidemiological studies identified cholesterol as a risk factor for MCI and AD. However little is known about the differential effects of HDL, LDL and TC levels.

Aims: We investigated the impact of HDL, LDL and TC on the development of MCI and AD in a longitudinal study of a representative birth cohort born between 1930-1932.

Methods: 500 participants of the ILSE-study were examined in 1993-1996 (t1), 1997-2000 (t2) and 2005-2008 (t3).

Results: Prevalence of MCI increased from 13% to 23% and 29% over time; in addition, 7% developed AD at t3. At t1 and t2 patients showed significantly higher LDL and TC levels than controls. There were no group differences concerning HDL. Patients showed a significant decrease of TC levels between t1 and t3. APOE4 carriers showed higher LDL and TC levels at all examination waves compared to the non-APOE4 carriers. With respect to LDL levels repeated analyses of variance yielded significant main effects for diagnosis, presence of an APOE4 allele and the interaction between diagnosis*APOE4. Concerning TC levels we found significant main effects for APOE4, time as well as a time*diagnosis interaction.

Conclusion: Our findings confirm the hypothesis that high midlife serum TC constitutes a risk factor for the development of MCI and AD and demonstrate that this effect particularly strikes at the APOE4 carriers. Moreover patients and controls differed concerning their LDL but not their HDL levels. The results indicate that LDL levels in midlife need to be considered in the prevention of MCI and AD.