CHOLESTEROL IN MILD COGNITIVE IMPAIRMENT AND ALZHEIMER’S DISEASE IN A PROSPECTIVE POPULATION BASED STUDY IN GERMANY

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Introduction: Animal research and epidemiological studies identified cholesterol as a risk factor for mild cognitive impairment (MCI) and Alzheimer’s disease (AD).

Aims: We therefore investigated the potential impact of plasma total cholesterol (TC) on the development of MCI and AD in a longitudinal study of a representative birth cohort born between 1930 and 1932.

Methods: 500 participants of the Interdisciplinary Longitudinal Study on Adult Development and Aging (ILSE) 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% of the participants developed AD at t3. At t1 and t2 MCI patients showed the highest TC level and control subjects the lowest with AD patients occupying an intermediate position. When compared to control subjects, patients with MCI or AD showed a significant decrease of TC levels between t1 and t3. In all examination waves APOE4 carriers showed higher TC levels in comparison to the non-APOE4 carriers. Analyses of variance yielded significant (p< 0.05) main effects for diagnosis, presence of an APOE4 allele and time. The interactions time*diagnosis and time*diagnosis*APOE4 also reached significance.

Conclusion: Our findings confirm the hypotheses 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. The reduction of TC among the patients could be explained by a disease effect.