OBJECTIVES: Increased carotid intima-media thickness (C-IMT) is a non-invasive marker of atherosclerosis and predicts vascular events. Moreover, increasing evidence suggests an association between carotid atherosclerosis and cognitive decline. The purpose of this study is to investigate the relationship between C-IMT and the development of cognitive impairment in a large population-based sample.

METHODS: This study was based on the data of the participants of the INVADE (Intervention project on cerebrovascular diseases and dementia in the district of Ebersberg, Bavaria) project. Vascular risk factors, Geriatric depression scale (GDS) and "6 Item Cognitive Impairment Test" (6CIT) were evaluated at baseline and after 2 years. The relationship between C-IMT and cognitive impairment was analysed using multivariate logistic regression.

RESULTS: Complete baseline data were available in 3386 subjects (mean age 67.7 [95% confidence interval (CI): 67.5, 68.0] years, 41% male). During follow-up, 174 subjects developed a new cognitive impairment. In the subgroup without cognitive impairment at baseline a significant association between cognitive decline after 2 years and elevated C-IMT at baseline could be detected with a significantly higher baseline C-IMT in those with cognitive decline (0.87 mm vs. 0.78 mm; p< 0.0001). After adjustment for various risk factors only
age, GDS baseline 6CIT and C-IMT were independently associated with the development of a new cognitive impairment. CONCLUSIONS: Our data indicate that an increased carotid intima-media thickness predicts a cognitive decline in an elderly population without prevalent cognitive impairment.