(MCI). **Methods:** Twenty-eight MCI patients (14 males, age=67±7yrs, clinical dementia rating score=0.5) and 30 age- and education-matched cognitively normal adults (14 males, age=67±7yrs) participated. The carotid arterial (β) stiffness index and the intima-media thickness (IMT) were measured using high resolution 2D Doppler ultrasonography and applanation tonometry in the left and right common carotid arteries (CCA). Peripheral and central pulse-wave-velocity (PWV) were measured between the right common carotid artery and the right radial and left femoral artery, respectively. WMH was assessed in 22 patients with MCI (12 males, age=67±7yrs) and 19 controls (5 males, age=67±7yrs) using MRI Fluid-Attenuated-Inversion-Recovery (FLAIR) images on a 3T Philips Achieva MR system. Periventricular and deep-brain WMH volumes were quantified and differentiated using semi-automatic programs (MRICro and MatLab). **Results:** MCI patients showed higher β-stiffness index (7.3±1.8 vs. 6.3±1.5, $p<0.05$) and decreased distensibility (0.31±0.07 vs. 0.37±0.09%mmHg, $P = 0.01$) in the CCA when compared to the cognitively normal subjects. No significant differences were found in the carotid artery IMT (0.70±0.11 vs. 0.66±0.10cm/s), peripheral (8.3±1.2 vs. 8.3±1.4cm/s) and central PWV (9.7±2.1 vs. 9.9±2.2cm/s) between the groups. Deep-brain WMH volume, normalized to the whole intracranium volume, was twice as high in the MCI group relative to the controls (dWMHx, 0.18±0.10 vs. 0.09±0.07%, $P<0.01$) although global WMH volume did not differ between the two groups. **Conclusions:** Deep-brain WMH volume was increased in patients with MCI and was associated with increases in carotid arterial stiffness. The relationship between arterial stiffness and deep-brain WMH volume in MCI merits further investigation.

P4-185 CONNECTIVITY WITHIN THE DEFAULT MODE NETWORK IS RELATED TO WORKING MEMORY PERFORMANCE IN YOUNG BUT NOT ELDERLY HEALTHY ADULTS

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Background: There is increasing evidence that memory systems are modulated as part of the default mode network (DMN). Moreover, this modulating effect might be age-dependent. Here, we examined whether connectivity and activity within the DMN is related to working memory performance in young and elderly healthy adults. **Methods:** Thirty five young (27.1 ± 5.1, range 21-37 years) and 52 elderly (69.8 ± 7.2, range 60-85 years) healthy subjects were studied with [18F]fluorodeoxyglucose positron emission tomography (FDG-PET) and neuropsychological testing. Independent component analysis of FDG-PET data captured a coherent activity of posterior cingulate (PCC), medial prefrontal (MPFC) and inferior parietal cortices bilaterally, i.e. major nodes of the classical DMN. Metabolic activity in these nodes was extracted and compared between groups of subjects with (relative to median) low and high performance on digit span backward test as index of verbal working memory. In addition, we conducted fiber tractography in a subset of subjects from whom diffusion tensor imaging (DTI) data were available (19 young and 28 elderly). **Results:** In the young group, there was no difference in metabolism between high (n = 17) and low (n = 18) performers. However, low performers showed lower metabolic connectivity between PCC and all other DMN nodes (P's<0.05). There were no differences in metabolic connectivity between low (n = 25) and high (n = 28) performers in the elderly group (P's>0.20). Instead, elderly low performers tended to show lower metabolism in a few regions outside the DMN, as compared to elderly high performers. Tractography based on PCC and MPFC nodes as seed regions resulted in reconstruction of superior cingulate bundles (CB) in all subjects. As compared to young high performers, young low performers showed lower density (one-sided $P<0.05$) and lower fractional anisotropy of left CB. There was no difference in respect to tractography indices between low and high performers in the elderly group. **Conclusions:** These data indicate that working memory performance is related to connectivity within the DMN in young healthy adults. Lack of such association in the elderly group suggests that DMN connectivity is not a determinant of memory function in normal aging. Instead, local processes, such as synaptic dysfunction, atrophy, abeta accumulation and microangiopathy might play a dominating role here.

P4-186 LONGITUDINAL CHANGES IN BRAIN FUNCTION RELATED TO STATIN USE

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Background: Previous studies have suggested a link between high cholesterol and increased risk for Alzheimer's disease (AD). This link led to the proposal that cholesterol lowering medications may prevent or delay the progression of AD, yet research examining this issue has produced conflicting results. Here, we examine the effects of statin use on longitudinal changes in brain activity to determine if the regional impact of cholesterol lowering medication involves areas vulnerable to AD pathology. **Methods:** We examined PET regional cerebral blood flow (rCBF) data from older participants in the Baltimore Longitudinal Study of Aging (BLSA). Statin users (n = 16; baseline age=66.0) who began medication after the start of the imaging study were compared to age, sex and health matched non-users (n = 16; baseline age=66.1). Differences in resting-state rCBF between the groups were investigated at pre-medication baseline, and linear changes in rCBF were assessed across 5 years of drug treatment. Neuropsychological tests evaluating memory, verbal ability, verbal fluency, attention, executive function, and visuospatial function were also administered annually. These data were analyzed in two temporal segments: the initial change from baseline to start of statin use, and the change across the 5 years of statin use. **Results:** There were no significant rCBF differences between groups at pre-medication baseline. However, statin users showed greater longitudinal increases in relative rCBF over time in the cerebellum, visual cortex, posterior cingulate and thalamus. Statin users also showed greater longitudinal decreases in medial frontal and lateral temporal regions during drug treatment. Cognitive ability did not significantly change over time for either group when examining the initial change from baseline or change over the 5 years. The groups also did not differ in their cognitive trajectories over time. **Conclusions:** Long-term statin use was associated with longitudinal rCBF changes relative to non-users. The regional patterns of change included posterior cingulate and medial frontal areas susceptible to AD pathology. These results show that statin use results in measurable longitudinal changes in neuronal function including regions vulnerable to disease-related neuropathology.

P4-187 HETEROGENEITY OF FUNCTIONAL CONNECTIVITY REDUCTIONS IN NORMAL COGNITIVE AGING

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Background: Previous research has demonstrated that functional connectivity (FC) among nodes in distributed brain networks is reduced in aging and neurodegenerative disease, based on resting-state functional MRI (rs-fMRI). However, there are few investigations of heterogeneity among network connections in terms of their peak strength in young adulthood, the time course of reductions with age, and relationships with brain structure. **Methods:** We collected structural MRI and rs-fMRI data from 40 young