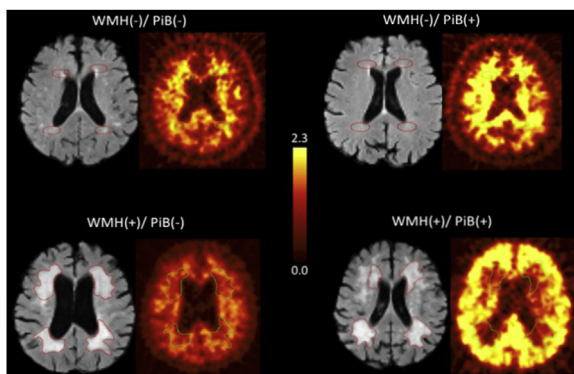


IC-P-018 BINDING OF PITTSBURGH COMPOUND B TO BOTH NORMAL AND ABNORMAL WHITE MATTER IN ELDERLY COGNITIVELY NORMAL CONTROL

Ann D. Cohen¹, Anna Goodheart¹, Erica Tamburo¹, Davneet Singh Minhas¹, Howard Aizenstein², Lisa Weissfeld², Beth Ellen Snitz², Julie Price², Chester A. Mathis², Oscar Lopez², William Edward Klunk², ¹University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, United States; ²University of Pittsburgh, Pittsburgh, Pennsylvania, United States. Contact e-mail: cohenad@upmc.edu

Background: The amyloid imaging agent, Pittsburgh Compound B (PiB), binds with high affinity to β -amyloid (A β) in the brain and it is well established that PiB also shows non-specific retention in white matter (WM). However, little is known about retention of PiB in areas of white matter hyperintensities (WMH), abnormalities commonly seen in older adults. Further, WMH are hypothesized to be related to both cognitive dysfunction and A β deposition. The goal of the present study was to explore PiB retention in both normal-appearing WM (NAWM) and WMH in a group of elderly, cognitively normal individuals. **Methods:** Cognitively normal elderly (n=64; 86.5 \pm 2.6 years) who had a FLAIR-MRI, PiB-PET(SUVR 50-70, cerebellum reference) and visual WMH score were included in this analysis. Two ROI analyses were applied: (1) ROIs of standardized dimensions were placed over "typical" areas of periventricular WMH caps on all subjects, regardless of WMH burden or size. (2) Subject-specific maps of NAWM and WMH were created using C++ and ITK, these maps were then co-registered with the PiB-PET and mean SUVR values were calculated in these NAWM and WMH ROI. **Results:** PiB retention was significantly reduced in the "typical-WMH" ROIs of subjects with high WMH compared to subjects with low WMH (see figure below). Additionally, in subjects with high WMH, there was significantly lower PiB retention in subject-specific ROIs of WMH compared to NAWM, this was not observed in subjects with low WMH, likely because of the absence of WMH in this group. **Conclusions:** These data suggest that white matter in areas of WMH may have different binding characteristics to PiB than does normal WM. Further exploration of this phenomenon may lead to insights about the molecular basis of this non-specific interaction.



IC-P-019 HIGH PUTAMEN 11C-PIB RETENTION IN MCI IS ASSOCIATED WITH AN INCREASED RISK OF CONVERSION TO AD

Karim Farid¹, Ove Almkvist¹, Katharina Bruggen², Stephen F. Carter³, Anders Wall⁴, Karl Herholz⁵, Agneta Nordberg⁶, ¹Karolinska Institute, Stockholm, Sweden; ²Karolinska Institute, Stockholm, Sweden; ³Karolinska Institute, Stockholm, Sweden; ⁴Uppsala University, Uppsala, Sweden; ⁵University of Manchester, Manchester, United Kingdom; ⁶Karolinska Institute, Stockholm, Sweden. Contact e-mail: karim.farid@ki.se

Background: Alzheimer's disease (AD) pathology has most likely been ongoing in brain years before onset of cognitive symptoms. The challenge

is to detect the disease in its early stages and to be able to predict among patients who have the disease who will develop mild cognitive impairment (MCI) and convert to AD. High fibrillar A β deposition in the cerebral cortex has been well established by 11 C-PiB-PET in MCI and AD patients. Furthermore, a high 11 C-PiB-PET retention was demonstrated in the striatum of PSN1 mutations carriers but is less studied in sporadic AD/MCI. The aim was to study the predictive value of high 11 C-PiB-PET retention in the striatum of MCI patients. **Methods:** We compared the caudate, putamen and neocortical 11 C-PiB-PET retention in 97 AD, 72 MCI patients, (mean age=68 ys). This population of patients was recently reported in a European multicenter imaging study (Nordberg et al. 2013). **Results:** In the evaluations we focused on the putamen as we found that the putamen 11 C-PiB retention exceeded the caudate 11 C-PiB retention in all subjects (p<0.001). No significant differences were found in the putamen 11 C-PiB retention between AD and MCI 11 C-PiB-positive patients. MCI patients, who converted to AD within 2 years, showed significantly higher 11 C-PiB retention in the putamen in comparison with the neocortex (p =0.006) while the MCI non-converting patients showed no significant differences between the two regions (p =0.15). These regional differences became somewhat less marked when compared MCI PiB-positive MCI converters (p =0.006) compared to MCI PiB-positive non-converters to AD (p =0.046). **Conclusions:** High putamen 11 C-PiB retention in MCI patients is associated with an increased risk of conversion to AD.

IC-P-020 EVIDENCE OF AMYLOID ON FLORBETABEN-PET IS ASSOCIATED WITH REDUCED EPISODIC MEMORY 10 YEARS PRIOR: RESULTS FROM THE WOMEN'S HEALTHY AGEING PROJECT

Paul Yates¹, Victor L. Villemagne², Joanne Robertson³, Lorraine Dennerstein⁴, Chuhui Li⁵, Patricia Desmond⁶, Colin Louis Masters⁷, Cassandra Szoek⁴, Christopher Cleon Rowe⁸, ¹Austin Health, Heidelberg, Australia; ²Austin Health, Melbourne, Australia; ³Mental Health Research Institute, Parkville, Australia; ⁴University of Melbourne, Melbourne, Australia; ⁵University of Melbourne, Parkville, Australia; ⁶University of Melbourne and Royal Melbourne Hospital, Melbourne, Australia; ⁷Florey Institute, UoM, Parkville, Australia; ⁸Austin Health, Melbourne, Australia. Contact e-mail: payates@gmail.com

Background: Positron emission tomography (PET) has shown that accumulation of brain amyloid begins 20-30 years prior to AD dementia. It is less clear when decline in cognitive function begins. We sought to identify whether reduced episodic memory (EM) was present a decade earlier in participants of the Women's Healthy Ageing Project (WHAP) who showed evidence of amyloid accumulation on a recent amyloid PET scan. **Methods:** 92 participants with cognitive measures at 1999, 2002, 2004 and 2012-13 and 18F-Florbetaben PET (FBB-PET) imaging in 2012-13 were studied. All participants had normal range cognition at the 1999-2004 time points. FBB Standardised Uptake Value Ratio (SUVR) was calculated for the neocortical regions normalized to cerebellar cortex. Cognitive assessment included the CERAD word list recall (1999, 2002 and 2004) and CVLT-delay (2002, 2004 and 2012-13). EM scores were compared between tertile of FBB SUVR using ANOVA, and linear regression to adjust for age, education and E4 status. **Results:** No results submitted. **Conclusions:** Individuals with higher amounts of AD-pathology in later life demonstrate subtle decrements in episodic memory function up to ten years earlier.

IC-P-021 MIDLIFE VASCULAR RISK, APOLIPOPROTEIN E4, AND AMYLOID STATUS 20 YEARS LATER: RESULTS FROM THE WOMEN'S HEALTHY AGEING PROJECT

Paul Yates¹, Victor L. Villemagne², Joanne Robertson³, Chuhui Li⁴, Lorraine Dennerstein⁴, Cassandra Szoek⁵, Christopher Cleon Rowe⁶, ¹Austin Health Heidelberg, Australia; ²Austin Health, Melbourne, Australia; ³Mental Health Research Institute, Parkville, Australia; ⁴University of Melbourne, Parkville, Australia; ⁵University of