change, even after correcting for baseline cortical summary SUVR and other demographic variables (Fig 2). 3 uptake patterns predicted relative increases of 0.01 to 0.02 SUVR/year, while one uptake pattern predicted a relative decrease of 0.02 SUVR/year. **Conclusions:** These findings suggest that expression of specific uptake patterns provides predictive information about amyloid accumulation that is not available using global amyloid measures, and which would aid in identifying subsets of individuals at higher risk of accelerated accumulation.

IC-P-010 INCREASED SENSITIVITY OF AV45-PET FOR THE DETECTION OF EARLY STAGE AMYLOIDOSIS AFTER CORRECTION OF WHITE MATTER SPILL-IN EFFECTS

Michel J. Grothe[1], Jorge Sepulcre[2,3], Gabriel Gonzalez-Escamilla[1], Christian Sorg[4], Stefan J. Teipel[1,5], *[1]German Center for Neurodegenerative Diseases (DZNE), Rostock, Germany; [2]Harvard Medical School, Boston, MA, USA; [3]Massachusetts General Hospital, Charlestown, MA, USA; [4]University Hospital Klinikum rechts der Isar, Technical University of Munich, Munich, Germany; [5]Clinic for Psychosomatics and Psychotherapeutic Medicine, Rostock, Germany. Contact e-mail: michel.grothe@dzne.de*

Background: Amyloid-sensitive PET is an increasingly used biomarker for the detection of cerebral amyloid pathology but its sensitivity may critically depend on the way the PET scans are analyzed. Here we explored the effect of different image processing strategies on the concordance of amyloid-PET findings with cerebrospinal fluid (CSF) Aβ42 levels; an alternative biomarker of cerebral amyloidosis which typically shows only weak to modest associations with amyloid-PET findings in early phases of amyloid accumulation. **Methods:** We investigated the effects of 2- and 3-compartment models of partial volume correction (PVC-2/-3) and choice of reference region on the correlation between cortical AV45-PET uptake ratios (AV45-SUVR) and CSF-Aβ42 levels using data from 603 subjects enrolled in ADNI-2. Furthermore, in a subset of 152 cognitively normal subjects the ability to detect regional AV45-SUVR increases in groups with decreased CSF-Aβ42 levels was compared between the different processing approaches using voxel-wise analyses. **Results:** When using a whole cerebellar reference region, PVC-3, which also controls for spill-in effects of white matter (WM) signal, resulted in a significantly increased correlation of AV45-SUVRs with CSF-Aβ42 levels. This effect was most pronounced for the lower range of AV45-SUVRs (Figure-1), and was not observed for the simpler PVC-2 model that only controls for CSF dilution. Using PVC-3, cognitively normal subjects within the 3rd quintile of CSF-Aβ42 values (mean = 202 pg/ml) showed significantly increased AV45-SUVR values in fronto-temporo-parietal association areas compared to subjects within the highest CSF-Aβ42 quintile (≥ 241 pg/ml), and amyloid signal further extended across the cortex in subjects within the lowest CSF-Aβ42 quintiles (Figure-2). In uncorrected data, significant AV45-SUVR increases were only detected in subjects within the two lowest CSF-Aβ42 quintiles. Use of a WM reference region increased the correlation with CSF-Aβ42 in uncorrected PET data to a similar degree as PVC-3, and these effects were non-additive. **Conclusions:** Preprocessing techniques that account for the contamination of gray matter signal by unspecific WM binding can uncover biologically meaningful signal in AV45-PET scans that would typically be regarded as "amyloid-negative", and thus increase their sensitivity for detecting early stage amyloidosis.

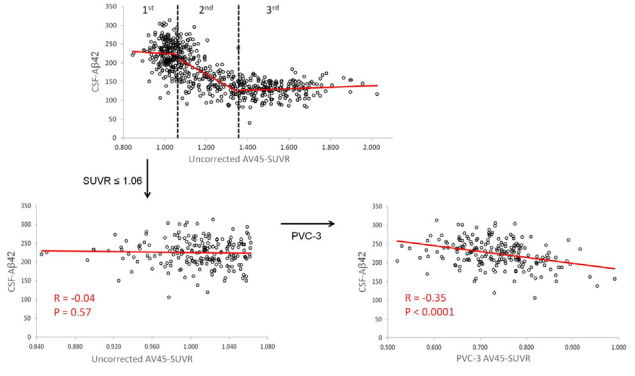

Figure 1. The effect of PVC-3 on the relation between cortical AV45-SUVRs and CSF-Aβ42 at the low range of AV45-SUVR values

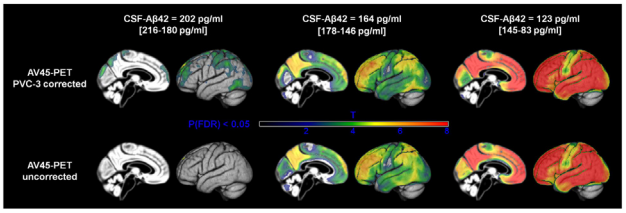

Figure 2. Regional AV45-SUVR increases in groups of cognitively normal subjects with decreased CSF-Aβ42 levels

IC-P-011 THE DIAGNOSTIC VALUE OF AMYLOID PET IN AN UNSELECTED COHORT OF MEMORY CLINIC PATIENTS

Arno de Wilde[1], Wiesje M. van der Flier[2], Femke H. Bouwman[3], Rik Ossenkoppele[4], Wiesje Pelkmans[1], Colin Groot[5], Marissa D. Zwan[6], Maqsood M. Yaqub[7], Vanessa Newman[8], Adriaan A. Lammertsma[5], Bart N. M. van Berckel[7], Philip Scheltens[6], *[1]Alzheimer Center, Department of Neurology, VU University Medical Center, Amsterdam, Netherlands; [2]Alzheimer Center, VU University Medical Center, Amsterdam, Netherlands; [3]Alzheimer Center and Department of Neurology, VU University Medical Center, Amsterdam, Netherlands; [4]VU University Amsterdam, Amsterdam, Netherlands; [5]Department of Radiology and Nuclear Medicine, Neuroscience Campus Amsterdam, VU University Medical Center, Amsterdam, Netherlands; [6]VU University Medical Center, Amsterdam, Netherlands; [7]Department of Radiology and Nuclear Medicine, VU University Medical Center, Amsterdam, Netherlands; [8]Piramal Life Sciences, Havant, United Kingdom. Contact e-mail: arnodewilde@gmail.com*

Background: Earlier studies evaluating the diagnostic value of amyloid PET used highly selected study samples. We offered amyloid PET to all patients visiting our memory clinic and studied how amyloid PET impacted clinical diagnosis. In addition, we investigated whether appropriate use criteria (APUC) adequately identified patients that benefitted most from amyloid PET. **Methods:** From March to December 2015, we offered [^{18}F] florbetaben PET to all patients (n=443) visiting our memory clinic. Of all patients, 170/443 (38%) participated (64±7yrs; 61%M). PET scans were visually assessed as amyloid positive or negative. Before and after disclosure of PET results, one dedicated neurologist determined syndrome diagnosis and suspected etiology for each patient. Retrospectively and blinded to amyloid status, we applied APUC, which were positive when patients [A] had persistent or unexplained mild cognitive impairment (MCI), [B] satisfied core clinical criteria for possible AD with atypical clinical course or