the association between sex hormones and brain beta amyloid protein (Aβ) deposition. In this study, we investigated the association between sex hormones and cerebral Aβ deposition in cognitively normal elderly population. **Methods:** Through the Korean Brain Aging Study for Early Diagnosis and Prediction of Alzheimer's Disease (KBASE), 117 cognitively normal elderly subjects (female 61, male 56) were included in this study. All the subjects underwent comprehensive clinical and neuropsychological assessment, 11C-labelled Pittsburgh Compound B (PiB) positron emission tomography (PET), and blood sampling. Global cerebral Aβ deposition was defined as mean cortical PiB retention of the cortical regions including the frontal, lateral temporal, lateral parietal and precuneus/posterior cingulate cortices. Plasma estradiol, testosterone, luteinizing hormone (LH), follicle stimulating hormone (FSH) and sex hormone binding globulin (SHBG) levels were measured. Calculated free estradiol and free testosterone index (FTI), which reflect the biologically active fraction of those hormones, were used for analyses. We performed Pearson's correlation and linear regression analysis across the whole cohort, and also performed the subgroup analyses in each gender. **Results:** For the entire subjects, we did not find any associations of sex hormones, gonadotropins, and SHBG with global PiB retention. However, subgroup analyses showed that FTI (β=-9.240, t=-2.92, p=0.005) and FSH (β=-0.128, t=-2.73, p=0.008) levels are associated with global PiB retention in female, while SHBG (β=0.187, t=2.75, p=0.008) level was related to global PiB retention in male. **Conclusions:** These findings suggest that there might be gender-specific differences in the way how sex hormones and gonadotropins affect cerebral Aβ deposition.

IC-P-021 IMPACT OF ^{18}F- FLORBETAPIR PET-CT ON CLINICAL DIAGNOSIS AND MANAGEMENT OF PATIENTS WITH POSSIBLE ALZHEIMER'S DISEASE

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Background: Amyloid imaging is a relatively new technique helping establish a diagnosis of Alzheimer's disease (AD). In the UK, the use of amyloid tracers is limited by the funding arrangements within the NHS. This study was aimed to evaluate the clinical impact of ^{18}F- Florbetapir-PET-CT on diagnosis and management of patients with high diagnostic uncertainty in community memory clinic. **Methods:** A retrospective analysis of 13 consecutive ^{18}F-Florbetapir-PET-CT studies was performed. Referrers were asked for an assessment of an impact on management, time between referral and diagnosis, the number of investigations performed during the diagnostic process, and whether any of them followed ^{18}F-Florbetapir-PET-CT. Impact was classified as (a) no impact (b) confirmed proposed management or (c) altered management. **Results:** 13 patients aged between 52-74 (mean 62.5) with unclear diagnosis underwent ^{18}F- Florbetapir-PET-CT imaging. The scan was positive for amyloid deposits in 9 out of 13 patients. Final diagnosis was AD in 9 patients, other diagnoses included frontotemporal dementia (FTDbv), traumatic encephalopathy, depression with anxiety and non-AD mild cognitive impairment (MCI). PET-CT scan had clinical impact in all cases by altering therapeutic management in 6 (46%) and confirming proposed management plan in the remaining 7 patients (53%). It was a conclusive investigation in 12 out of 13 cases. Only one person required further diagnostic tests after amyloid PET-CT (FDG-PET). The time from referral to diagnosis varied between 6 and 39 months, with the shorter intervals observed in more recently referred patients who had access to amyloid imaging. The number of the investigations, including structural imaging (MRI), FDG-PET, CSF analysis and neuropsychological assessment varied between 1 (usually MRI) to 5 (including sequential neuropsychological assessments). **Conclusions:** This data indicates ^{18}F- Florbetapir-PET-CT has a significant impact on the confidence of referring clinicians in all cases by altering therapeutic management in 46%, and confirming clinical impression in the others. Amyloid imaging can be a useful technique in diagnostically challenging cases where differential diagnosis includes AD in community memory clinic setting. The considerable cost of the scans may be offset by reducing the time from referral to diagnosis and the number of tests needed to confirm it.

IC-P-022 CONVERSION OF AMYLOID QUANTITATION WITH FLORBETAPIR SUVR TO THE CENTILOID SCALE

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Background: Klunk et al (2015) presented a method for standardization of quantitative amyloid imaging measures by scaling the outcome of each particular analysis method or tracer to the Centiloid scale. Herein we present our work converting florbetapir SUVr to the Centiloid scale. **Methods:** Florbetapir and PiB images were acquired 50-60 and 50-70 minutes post injection (respectively) for 46 subjects [13 young cognitively normal (YCN), 6 cognitively normal elder controls, 3 at-risk elderly, 7 MCI, 3 possible AD, and 14 AD] on two separate (18±20) days. SUVr values were calculated by previously published methods (Klunk et al, 2015; Joshi et al, 2015), which in turn were converted to Centiloids according to Klunk *et. al.* The first step was to validate our image registration

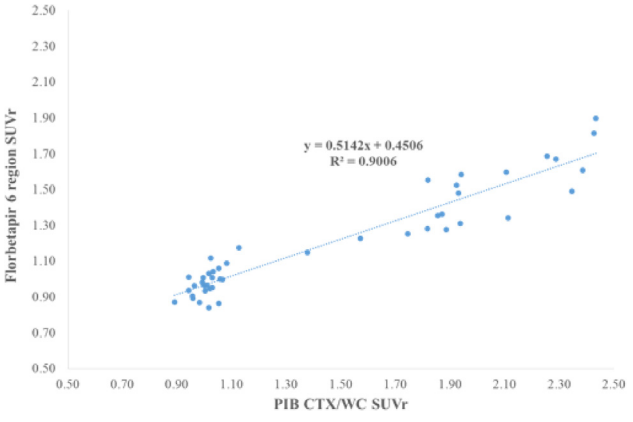

Figure 1a. SUVr for 46 subjects of mixed amyloid pathology who were scanned with both florbetapir and PiB.

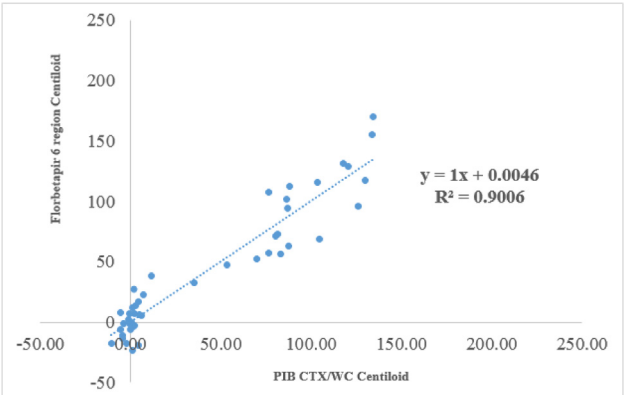

Figure 1b. Centiloids for 46 subjects obtained by linear regression through Figure 1a.

pipeline and determine average PiB SUVr anchor points for stereotypical YCN (n=34) and AD (n=45) subjects using data from the Global Alzheimer's Association Interactive Network (GAAIN). The second step was to employ linear regression to convert florbetapir and PiB SUVr to the Centiloid scale. **Results:** Replicate analysis of GAAIN PiB data resulted in mean SUVr for YCN (n=34) of 1.004±0.048 and AD (n=45) of 2.067±0.204 (R^2 0.997, slope 0.996, intercept -0.002). Our independent study showed that SUVr values (n=46) for florbetapir and PiB were correlated (R^2 = 0.900). The regression equating florbetapir SUVr by the Joshi et al method to PiB SUVr by the Klunk et al method was y = 0.514x + 0.451 and appeared to support a linear relationship between the two tracers (Figure 1). The average YCN SUVr for florbetapir (0.98±0.07) and PiB (1.01±0.03), were converted to 1.51±12.06 and 0.32±2.61 Centiloids, respectively. 74 YCN florbetapir scans from a previous study (Clark et al, 2011), with average SUVr of 0.96±0.04 were converted to Centiloids using the same regression equations yielding an average of -1.60±7.59 Centiloids. Applied to the same study, a threshold of approximately 22 Centiloids, 3 SD above the young controls, was optimal for distinguishing cases with neuropathologically verified no/sparse vs moderate to frequent plaques. **Conclusions:** These findings provide for conversion of florbetapir SUVr to Centiloids, potentially allowing improved tracer independent amyloid quantitation.

IC-P-023 DIFFERENTIAL ASSOCIATION OF BLOOD INSULIN AND HBA1C WITH CEREBRAL AMYLOID DEPOSITION AND REGIONAL GLUCOSE METABOLISM IN MIDDLE- AND OLD-AGED ADULTS

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Background: Preclinical studies indicated that insulin may activate beta-amyloid protein (Aβ) clearance through multiple pathways. Recently, a couple of studies have evaluated whether blood insulin or insulin resistance affect brain Aβ deposition in living human, the results were controversial. We aimed to investigate the associations of blood insulin and hemoglobin A1c (HbA1c) with cerebral amyloid burden and regional cerebral glucose metabolism (rCMglu) in cognitively normal middle- and old-aged adults. **Methods:** One hundred and seventy-four cognitively normal middle- and old-aged adults (mean age = 68.9). Higher levels of blood insulin and HOMA-IR related to lower global PiB retention even after controlling age, gender, APOE4 status, and body mass index (BMI). **Results:** The relationships was much stronger in old-aged participants (age above 65 years) than in mid-aged ones. In addition, both blood insulin level and HOMA-IR were positively associated with rCMglu in the angular gyrus, hippocampus, and parahippocampal gyrus. In contrast, HbA1c and fasting blood glucose had no association with global PiB retention, but both were negatively associated with rCMglu in all the ROIs after controlling age, gender, APOE4 status, and BMI. **Conclusions:** Our results indicate that blood insulin itself may contribute to lowering cerebral Aβ deposition and maintaining brain function in cognitively normal middle- and old-aged adults, old-aged in particular, while higher blood glucose level may have negative influence on brain function through non-amyloid mechanism.

IC-P-024 PIB PET CENTILOID QUANTIFICATION USING CAPAIBL

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Background: The wide range of Amyloid PET tracers and analysis techniques used in clinical studies can lead to large variability in cut-off values and quantitative assessment of Amyloid load. The Centiloid scale was developed to normalise neocortical retention measured using different tracers and analysis methods. In this study, we evaluate using the Centiloid scale with the PET-only quantification method CapAIBL (capaibl-milxcloud.csiro.au). **Methods:** The 34 YC and 45 AD PiB PET calibration scans from the Centiloid level-1 study were quantified using CapAIBL, using the Centiloid template and reference regions. Additionally, 991 PiB PET scans (639 HC, 161 MCI, 166 AD and 25 others) from the AIBL study were processed using CapAIBL, and compared to the Centiloid values computed using the recommended SPM pipeline. **Results:** Using the calibration scans, the mean whole cerebellum (WC) SUVR values obtained using CapAIBL were within 2% of the published values, (AD:-0.88%, YC:-1.76%). The regression slope (0.99), intercept (0.27) and R2 (0.99) of the Centiloid transformed WC SUVR values were within the accepted range. Using CapAIBL on the AIBL images, the regression slope (0.98) and R2 (0.99) of the Centiloid transformed WC SUVR values (computed using the Centiloid calibration coefficients) were within the accepted range compared to the SPM derived Centiloid values. The intercept (2.03) was however marginally outside the accepted range (<2). Using the AD+ (SUVR>1.5) and HC- (SUVR<1.3) in AIBL, the mean whole cerebellum (WC) SUVR values were within the accepted range (<2%) for the AD+ (-1.13%), but marginally outside for the HC- (-2.70%). This resulted in a mean error in Centiloid values of -0.46% in the AD+