borderline CSF Aß$_{42}$ can already be indicative of underlying AD pathology. Future research should focus on discordant cases to clarify the underlying possibly neuropathological causality.

IC-P-006 EARLY AMYLOID ACCUMULATION AND ITS COGNITIVE CONSEQUENCES IN HEALTHY ADULTS

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Background: The recent failures of anti-amyloid clinical trials has led to a shift towards trials aimed at earlier intervention, underscoring the need for information about the earliest stages of amyloid accumulation and its impact on cognition. Autopsy and amyloid PET imaging data have converged to suggest that the orbitofrontal cortex (OFC) may be one of the earliest sites of amyloid accumulation, whereas posteromedial regions exhibit accumulation later and are potentially more closely linked to dementia onset. In the present study, we examined whether the OFC and penumbral regions may provide a window into the earliest stages of amyloid accumulation by measuring change in amyloid over 4 years, particularly in middle-aged adults and those who were initially amyloid-negative. Additionally, we assessed whether this early accumulation was associated with subtle cognitive deficits. In comparison, we also examined whether posteromedial amyloid accumulation appears later and is associated with AD-related cognitive deficits. **Methods:** 83 participants (age 30-89) were included from the Dallas Lifespan Brain Study who completed florbetapir PET and a cognitive battery at baseline and 4-year follow-up. Regional amyloid accumulation was measured (Time 2-Time 1 SUVR) in the following Freesurfer-derived ROIs: OFC ROIs (medial OFC, lateral OFC, pars orbitalis); Posteromedial ROIs (precuneus, posterior cingulate, isthmus cingulate). **Results:** Consistent with the lateral OFC and pars orbitalis as early sites of amyloid accumulation, accumulation was detected in both middle-aged adults and adults who were amyloid negative at baseline (Figure 1a). The rate of accumulation in lateral OFC and pars orbitalis was associated with deficits in follow-up reasoning performance (but not episodic memory or processing speed), even after restricting to those who were amyloid negative at baseline (Figure 2). In comparison, high precuneus amyloid accumulation was predominately restricted to older, amyloid positive adults (Figure 1b) and was associated with AD-typical deficits in episodic memory. **Conclusions:** These findings support the use of the OFC and penumbral regions as markers of the earliest stages of amyloid accumulation, and provide evidence that even at this early stage, negative consequences of amyloid accumulation may already be apparent.

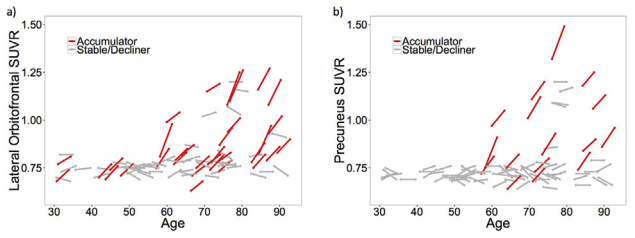

Figure 1. Regional Amyloid Accumulation over 4 Years across the Lifespan. Lines represent change in SUVR as a function of age for (a) lateral orbitofrontal cortex and (b) precuneus. Within each region, individuals were grouped into accumulators (red) and stable/decliners (gray) based on a cluster analysis. Consistent with the OFC as an earlier site of accumulation, chi-square tests revealed a higher proportion of accumulators in the lateral orbitofrontal cortex than the precuneus across the full sample, in middle-aged adults alone and in those who were amyloid negative at baseline.

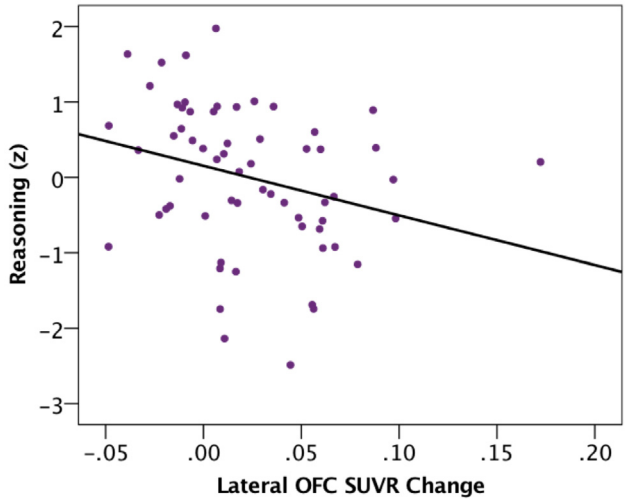

Figure 2. Cognitive Consequences of Early Amyloid Accumulation in OFC. In those who were amyloid negative at baseline, increasing regional amyloid accumulation in the lateral orbitofrontal was related to lower follow-up reasoning performance, suggesting accumulation in the OFC may have negative consequences for reasoning even at this early stage of disease progression.

IC-P-007 HOW AMYLOID PET CHANGES COGNITIVE CARE: A BROADER VIEW

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Background: Amyloid PET imaging is a reliable biomarker of Alzheimer's disease pathology and could prove valuable in clinical care. A standard formulation is that diagnostic testing should be performed only if it modifies drug or surgical treatment. There are, however, many additional reasons for knowing the cause of the cognitive impairment with greater certainty. Although some recommendations are relevant irrespective of diagnosis, others depend upon the specific cause of cognitive impairment identified. Provider confidence in the diagnosis also affects the willingness to discuss difficult, lifechanging recommendations. **Methods:** We identified 8 independent, non-drug care recommendations that would be altered depending upon the cause of cognitive impairment and used them as outcomes in a study of the clinical use of amyloid PET. Amyloid PET with 18F-flutemetamol was performed in 15 patients (9 men, 6 women, mean age 64.6, age range 51-85) whose diagnosis was uncertain after an otherwise complete dementia specialist evaluation. Scans were read visually, aided by quantitative analysis using Cortex ID software and classified as either positive indicating significant pathology or negative. We evaluated changes in physician diagnosis, diagnostic confidence and recommended care practices before and after amyloid PET imaging. **Results:** Significant binding in the cerebral cortex was present in 13 (87%) of the scans. In 14 patients (82%) recommended care practices changed after amyloid PET. These recommendations involved planning for likely stable or progressive disease course (33% change), monitoring for disease complications (13%), disease specific

education (40%) and referrals. Scans stimulated referrals to develop a family plan of progressive support in 27% and to a psychiatrist in 20%. The most frequent change in care practices was referral to a Alzheimer clinical trial (53%). The diagnosis judged most likely before the scan changed in 27% and there was a 90% increase in diagnostic confidence after the amyloid PET. **Conclusions:** The classification of Alzheimer's pathology with amyloid PET frequently changes provider recommendations that depend upon a specific diagnosis. Changes in recommended non-drug care practices contribute to the value of amyloid PET. Further experience is needed to fully understand the role of amyloid classification technology in clinical practice.

IC-P-008 PREDICTION OF AMYLOID POSITIVITY WITH DEMOGRAPHIC, APOE AND NEUROPSYCHOLOGICAL INFORMATION IN COGNITIVELY NORMAL OLD ADULTS WITH SUBJECTIVE COGNITIVE DECLINE

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Background: There are evidences that subjectively experienced cognitive decline even at the stage of normal performance on cognitive tests is associated with an increased risk for future cognitive decline and Alzheimer's disease (AD) dementia. However, subjective cognitive decline (SCD) is unspecific, and related to various medical, psychiatric, and even cultural conditions. For the purpose of early detection of AD, therefore, identifying the characteristics of SCD at the preclinical stage of AD is very important. We aimed to elucidate the demographic, clinical, neuropsychological, and genetic characteristics associated with beta-amyloid (Aβ) deposition, and to search the best prediction model for Aβ positivity in cognitively normal (CN) adults with SCD. **Methods:** One-hundred thirty two CN elderly with SCD were recruited from the Korean Brain Aging Study for Early Diagnosis and Prediction of Alzheimer's Disease (KBASE). The presence of SCD was defined by the answer for a single question: "Do you feel that your cognitive function has declined compared to past?" All the subjects received comprehensive clinical and neuropsychological assessments, apolipoprotein E (APOE) genotyping, ^{11}C-labelled Pittsburgh Compound B (PiB) –PET imaging. Aβ positivity was determined if the SUVR value was > 1.4 in at least one of the four ROIs **Results:** Univariate analyses showed that Aβ positive group was older and had more APOE e4 carrier than Aβ negative group. In regard of neuropsychological performance, Aβ positive subjects had higher phonemic fluency score than Aβ negative ones. A series of multiple logistic regression analyses showed that the model including age, APOE genotype, and phonemic fluency score together had best predictive ability for Aβ positivity in CN subjects with SCD (prediction accuracy: 87.1%), although the models with each of the three variables or any two of them significantly predict Aβ positivity as well (accuracy: 81.8∼85.6%). **Conclusions:** Our findings suggest that older age, the presence of APOE e4 allele, and higher phonemic fluency increase the likelihood of preclinical AD in cognitively healthy old adults with subjective cognitive complaint. Higher phonemic fluency may be related to compensatory brain activation for Aβ pathology.

Table 2
Finally Selected Logistic Regression Model (model CNG)* for Amyloid positivity Prediction in SCD(+)

Variables	Regression Coefficient	Standard Error	Odd ratios	95% Confidence Interval	*p*
Intercept	-16.44	3.59	0.00		<0.001
Age	0.16	0.04	1.18	1.08-1.28	<0.001
Phonemic fluency	0.09	0.02	1.09	1.04-1.15	<0.001
ApoE4+	2.12	0.64	8.32	2.38-29.04	0.001

Abbreviations: Apo E4+, apolipoprotein ε4 carrier; SCD, subjective cognitive decline.

IC-P-009 OBSTRUCTIVE SLEEP APNEA IS ASSOCIATED WITH LONGITUDINAL INCREASES IN AMYLOID BURDEN IN ELDERLY MILD COGNITIVE IMPAIRMENT INDIVIDUALS

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Table 1
Results Obtained From Logistic Regression Analyses Designed to Select Appropriate Models for Amyloid positivity prediction in SCD(+)

Models	-2LL	χ^2	df	*p*	Diagnostic Accuracy (%)	Significance test for -2LL Difference
One-candidate model						
Model C Age	103.72	15.22	1	<0.001	81.8	
Model S Age at onset of SCD	107.07	11.88	1	0.001		
Model N Phonemic fluency	112.23	6.72	1	0.01	83.3	
Model G APOE4+	110.46	8.49	1	0.003	83.3	
Two-candidate model						
Model CN Age+ Phonemic fluency	92.44	26.51	2	<0.001	84.1	Model CN versus C: p=0.001 Model CN versus N: p=<0.001
Model CG Age+ APOE4+	95.64	23.31	2	<0.001	85.6	Model CG versus C: p=0.004 Model CG versus G: p=<0.001
Model NG Phonemic fluency+ APOE4+	101.22	17.73	2	<0.001	83.3	Model NG versus N: p=0.001 Model NG versus G: p=0.004
Three-candidate model						
Model CNG Age+ Phonemic fluency+ APOE4+	80.97	37.98	3	<0.001	87.1	Model CNG versus CN: p=0.001

Abbreviations: Apo E4+, apolipoprotein ε4 carrier; SCD, subjective cognitive decline.