Table 1
Regions of Interest and Language Outcomes from WRAP

	Boston Naming Test		Phonemic Fluency		Semantic Fluency		Syntactic Complexity - Discourse		Semantic Units - Discourse		Speech Fluency (Mazes)	
Region of Interest[†]	*F-statistic*	*P-value*	*F-statistic*	*P-value*	*F-statistic*	*P-value*	*F-statistic*	*P-value*	*F-statistic*	*P-value*	*F-statistic*	*P-value*
Inferior Frontal Gyrus	0.03	0.86	1.07	0.30	0.03	0.86	4.56	0.04*	0.34	0.56	0.59	0.45
Superior Temporal Gyrus	0.00	0.98	0.02	0.90	0.14	0.71	1.10	0.30	0.13	0.72	0.94	0.34
Anterior Cingulate	0.11	0.75	2.05	0.15	0.06	0.81	4.99	0.03*	0.00	0.95	0.20	0.66
bal 8 Regions of Interest	0.04	0.84	0.76	0.38	0.12	0.73	2.71	0.11	0.08	0.79	0.25	0.66
Superior Medial Gyrus	0.00	0.99	0.02	0.90	0.01	0.95	0.13	0.73	0.13	0.72	0.08	0.78
itoFrontal Medial Cortex	0.03	0.86	0.67	0.41	0.01	0.91	4.51	0.04*	0.34	0.56	0.13	0.72

[†] Regions reported here are a sum of left and right hemispheres

and Venneri, 2005; Ahmed et al 2013). Given these findings, we investigated whether rates of amyloid burden would be associated with language outcomes from both standardized tests and non-standardized connected speech samples in a healthy, at-risk cohort. **Methods:** Participants were recruited from the Wisconsin Registry for Alzheimer's Prevention (WRAP), a longitudinal cohort (n>1500) enriched for positive family history of AD. The present analyses included 188 WRAP subjects (mean age=61; 68% female; 38% *APOE*-4+) who had undergone [C-11]Pittsburgh compound B ([C-11]PiB) positron emission tomography (PET) scan, a Fluorodeoxyglucose ([F-18] FDG PET) scan and a 3.0 Tesla magnetic resonance imaging (MRI) scan. Neuropsychological language measures from their most concurrent WRAP visit were used; a subset of 48 individuals had transcribed speech samples from a picture description task and were used for the discourse analysis measures. **Results:** We constructed a series of linear models using separate regions of interest (ROI) as predictors, including one global measure, an average of 8 ROIs. Adjusting for the covariates of age, sex and baseline literacy, we found significant associations between areas of the frontal cortex (Inferior Frontal Gyrus-Right (p = .04) and Left (p=.05), Anterior Cingulate- Right (p=.05) and Left (p=.04), and Orbitofrontal Cortex Right (p=.03) and Left (p=.05) and the syntactic complexity measure from the connected speech samples. No other language outcomes were significantly associated with the hypothesized ROIs. **Conclusions:** We found an association between amyloid burden in areas of the frontal cortex and a spontaneous speech measure of syntactic complexity. This preliminary analysis suggests that discourse analysis may be a sensitive and informative measure of early cognitive change, particularly when paired with other biomarkers of AD pathology such as amyloid burden.

IC-P-005 **THE INCREMENTAL DIAGNOSTIC VALUE OF 18F-FLORBETAPIR IMAGING IN NATURALISTIC PATIENTS WITH COGNITIVE IMPAIRMENT: THE INDIA-FBP STUDY**

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Background: The 18F-Florbetapir PET amyloid tracer, recently approved by FDA and EMA, has a relatively long radioactive half-life (110-min), making amyloid imaging logistically feasible. However, the added diagnostic value is unclear. We aim to evaluate the incremental diagnostic value of 18F-Florbetapir amyloid PET on top of routine assessment for diagnosis of cognitive impairment. **Methods:** The study, completed in December 2014, includes 26 Healthy elderly Controls (HC) and 228 patients with a diagnostic probability of Alzheimer Disease (AD) between 15% and 85% accessing 20 Italian memory clinics. Patients complete their diagnostic work-up according to usual local practice. Physicians formulate a clinical diagnosis and rate their diagnostic confidence (0-100%). Patients and HC then undergo amyloid PET with 18F-Florbetapir; diagnoses and diagnostic confidence are revised. Diagnostic confidence increase was evaluated by Wilcoxon Signed Rank Test. **Results:** To date, data from 140 patients were processed. Of these, before PET scan, 95 patients were diagnosed with AD (Table 1); 27 with FrontoTemporal Disease (FTD; Table 2); 3 with Lewy Body Disease (LBD; Table 3); 10 with Vascular Dementia (VD), Parkinson's Disease Dementia (PDD), and Cortical Basal Degeneration (CBD); and 5 with other pathologies. Thirty AD (31.6%) tested negative to amyloid-imaging. Positive scans occurred in 11 FTD (40.7%), in 2 LBD (66.7%), in 7 VD-PDD-CBD (70%), and in 4 HC (15.4%). 75% of positive HC were men aged over 69 (Figure 1). The diagnosis after amyloid-imaging was changed in: 86.7% of AD with negative scan; 90.9% of FTD, 50% of LBD and 100% of VD with positive scan. The diagnostic confidence increased significantly after amyloid-PET for both patients with confirmed diagnosis of AD (11.8% increase V=49, $p<.05$; Figure 2) and those with confirmed diagnosis of non-AD (13.6% increase; V=0, $p<.05$; Figure 3). 243 PET scans were evaluated by two nuclear medicine physicians, who disagreed on 32 cases (rate of

Table 1
Diagnosis after PET in 95 patients with a clinical diagnosis of AD before PET.

	Amy PET	
Diagnosis after PET	Aβ+	Aβ-
Same (AD)	63 (96.9%)	4 (13.3%)
FTD	1 (1.5%)	5 (16.7%)
VD	-	13 (43.3%)
LBD	1 (1.5%)	-
SNAP	-	3 (10%)
Other	-	5 (16.7%)
Total	65 (100%)	30 (100%)

Table 2
Diagnosis after PET in 27 patients with a clinical diagnosis of FTD before PET.

	Amy PET	
Diagnosis after PET	Aβ-	Aβ+
AD	2 (12.5%)	10 (90.9%)
Same (FTD)	12 (75%)	1 (9.1%)
VD	2 (12.5%)	-
Total	16 (100%)	11 (100%)

Table 3
Diagnosis after PET in 3 patients with a clinical diagnosis of LBD before PET

	Amy PET	
Diagnosis after PET	Aβ-	Aβ+
AD	-	1 (50%)
Same (LBD)	1 (100%)	1 (50%)
Total	1 (100%)	2 (100%)

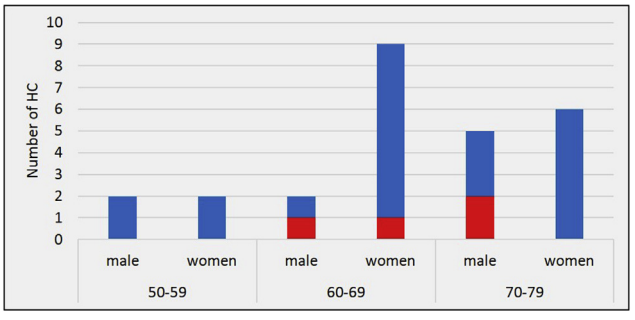

Figure 1. HC divided by age and amy-PET result. In red HC Aβ+ and in blue HC Aβ-.

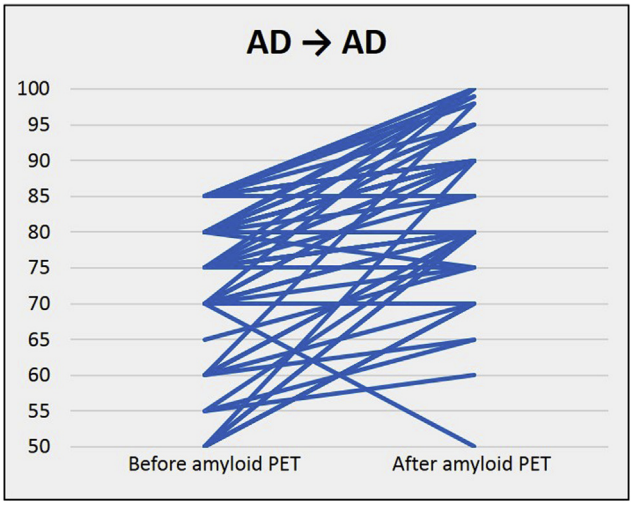

Figure 2. Increase in diagnostic confidence in patients with a confirmed diagnosis of AD.

concordance: 86.8%). **Conclusions:** Data are in line with previous reports. Based on preliminary results, amyloid PET with 18F-Florbetapir has a significant impact on diagnosis and diagnostic confidence of dementia experts.

IC-P-006 REGIONAL GRAY MATTER LOSS IN LATE-LIFE ONSET DEPRESSION IS ASSOCIATED WITH VASCULAR RISKS, BUT NOT WITH CEREBRAL AMYLOIDOSIS

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Background: Although some structural brain changes have been reported in late life onset depression (LLOD), only limited information is available for the causes that underlie to such brain changes in LLOD patients. We first tried to identify LLOD-related regional gray matter (GM) changes, and then investigated the influence of vascular risk factors (VRF) and cerebral amyloidosis on the regional brain changes. **Methods:** Non-demented subjects who first experienced major depressive episode after age of 60 years were recruited as LLOD group (N = 29). As normal control (NC) group, non-demented elderly individuals who had no experience of major depressive episode were also included (N = 27). All participants received comprehensive clinical assessment including vascular risk factor (VRF) evaluation, ^{11}C-labeled Pittsburgh Compound B (PiB) positron emission tomography (PET) and magnetic resonance imaging (MRI). Comparison of regional GM volume between LLOD and NC group was performed by using voxel-based morphometry (VBM) at corrected $p < 0.05$ after family-wise error correction. The regions where LLOD group showed greater volume loss compared to NC group was set as region-of-interest (ROI) for further analyses on the association of VRF and cerebral amyloid deposition . **Results:** There were no significant differences in age, gender and educational level between LLOD and NC groups. Compared to NC, LLOD subjects showed significant regional GM volume loss mainly in the bilateral prefrontal regions including the right medial frontal, left anterior cingulate and left orbitofrontal regions. In linear regression analysis that had the mean GM volume of the ROI as a dependent variable, the presence of VRF showed significant association with the ROI volume in LLOD group after controlling PiB positivity status. In contrast, PiB positivity status did not demonstrate significant association with the mean ROI volume in the same regression model. **Conclusions:** Our findings suggest that vascular risks are major contributors to LLOD and related regional brain changes supporting the 'vascular depression hypothesis', while cerebral amyloidosis itself is not likely to be a main player in LLOD.

IC-P-007 CLINICAL UTILITY OF AMYLOID IMAGING IN THE DIFFERENTIAL DIAGNOSIS OF ATYPICAL/UNCLEAR DEMENTIAS AND ITS IMPACT ON CAREGIVERS

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