SATURDAY, JULY 18, 2015
ALZHEIMER'S IMAGING CONSORTIUM (IC)
IC-02
ATYPICAL ALZHEIMER'S AND OTHER DEMENTIAS

IC-02-01 CHARACTERIZING PATTERNS OF ATROPHY BETWEEN COGNITIVELY UNIMPAIRED HEALTHY ELDERLY CONTROLS WITH EITHER ALZHEIMER'S DISEASE OR SUSPECTED NON-ALZHEIMER'S DISEASE PATHOPHYSIOLOGY

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Background: Suspected non–Alzheimer disease pathophysiology (SNAP) has been recently defined as the presence of AD-like neurodegeneration in the absence of Aβ deposition. In this study, we try to identify the pattern of cortical grey matter (GM) atrophy in cognitively unimpaired healthy elderly controls (HC) when hippocampal volume is used to define neurodegeneration, and ascertain if this pattern is different in those with or without AD pathology. **Methods:** 320 cognitively unimpaired subjects were assessed using PET (PiB, flutemetamol or florbetapir) and MRI as part of the AIBL study. Aβ status (A) was determined using CapAIBL©, while neurodegeneration (N) was established using hippocampal volume (HV) measured with FreeSurfer. Following Jack et al, (2012, 2013) subjects were categorized as A-N-, A+N-, A+N+, or A-N+ (SNAP). Regional GM volumes at baseline and rates of atrophy for subjects with repeat imaging timepoints (N=135) were compared. Volumes were adjusted for age and intra-cranial volume. Statistical tests were corrected for multiple comparisons. **Results:** At baseline, 63% (N=203) of subjects were classified as A-N-, 15% (N=48) as A+N-, 5% (N=16) as A+N+, and 17% (N=53) as SNAP. Compared to A-N-, A+N- had no GM atrophy, SNAP had atrophy in all regions but the cuneus, posterior cingulate, and post-central gyrus, while A+N+ had GM atrophy in all regions except for the cuneus and pre/post-central gyri. Compared to A+N-, SNAP had significant GM atrophy in the inferior temporal ($p<0.0001$). Compared to SNAP, A+N+ had more atrophy in precuneus ($p<0.005$). SNAP had similar rates of atrophy than A-N-, A+N- had faster atrophy rates ($p<0.05$) than A-N- in the temporal, precuneus and occipital, and A+N+ had faster atrophy rates ($p<0.05$) than A-N- in all regions but the anterior cingulate. **Conclusions:** At baseline, the pattern of GM atrophy in SNAP was more extensive than in A+N-, while the rates of atrophy did not differ from A-N-, suggesting SNAP, as defined by HV, comprise different underlying pathologies, and are on a different trajectory than those with AD pathology.

IC-02-02 DISTINCT [^{18}F]AV1451 RETENTION PATTERNS IN CLINICAL VARIANTS OF ALZHEIMER'S DISEASE

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Background: To describe preliminary findings applying the putative tau PET ligand [^{18}F]AV1451 (formerly named T807) in clinical variants of Alzheimer's disease (AD) and to compare the regional specificity of [^{18}F]AV1451 to that of [^{11}C]PIB (measure of amyloid

Table 1
Demographics and regional PET uptake

	PCA	lyPPA	EOAD/LOAD	Controls
N	5	4	3	19
Age	64	63	68	79
Sex (m/f)	2/3	1/3	0/3	6/13
MMSE	23	20	22	29
[^{18}F]AV1451 SUYr (Tau)				
Occipital	2.21	1.71	1.65	1.06
Parietal	2.41	2.26	2.20	1.11
Temporal	2.04	2.36	2.12	1.15
Frontal	1.56	1.79	1.36	1.10
MTL	1.47	1.30	1.67	1.18
[^{18}E]FDG SUYc (Glucose metabolism)				
Occipital	1.31	1.89	1.78	1.59
Parietal	1.18	1.43	1.41	1.55
Temporal	1.13	1.25	1.24	1.35
Frontal	1.43	1.53	1.58	1.50
MTL	1.03	1.11	1.09	1.11
[^{11}C]PIB DVR (Amyloid)				
Occipital	1.49	1.65	1.38	1.09
Parietal	1.80	2.17	1.84	1.19
Temporal	1.61	2.02	1.63	1.08
Frontal	1.79	2.28	1.82	1.13
MTL	1.12	1.34	1.21	1.05

Data are presented as mean values (except for sex).

PCA = Posterior cortical atrophy; = logppenic variant primary progressive aphasia; EOAD = early-onset Alzheimer's disease; LOAD = late-onset Alzheimer's disease; SUVr = Standardized uptake value ratio; DVR = Distribution volume ratio.