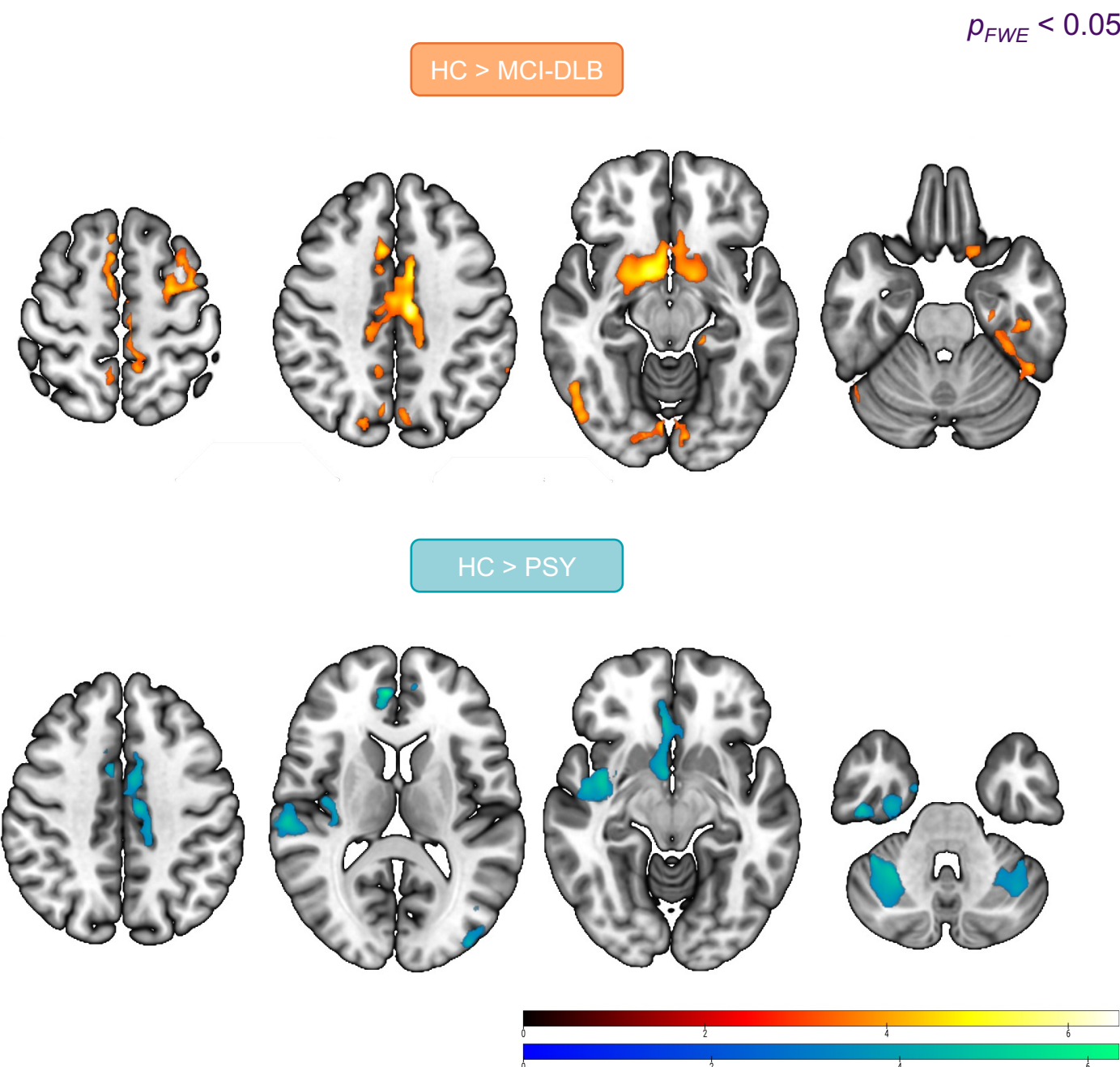


Characterizing early structural MRI signatures of prodromal dementia with Lewy bodies: preliminary Voxel-based morphometry findings

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Macrostructural atrophy in prodromal dementia with Lewy bodies (pro-DLB) is consistent and overlaps across different phenotypes; hippocampal preservation distinguishes pro-DLB from prodromal Alzheimer’s disease.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS
Prodromal dementia with Lewy bodies (pro-DLB) may present with different phenotypical onsets, most commonly mild cognitive impairment (MCI-DLB) or predominant psychiatric symptoms (PSY)¹. As the identification of robust neuroimaging biomarkers at this stage remains challenging, the present study aimed to: - Characterize gray matter (GM) alterations associated with pro-DLB compared with healthy aging and prodromal Alzheimer’s disease (MCI-AD); - Identify possible distinct patterns of atrophy among pro-DLB onsets.	Participants: 54 patients, including: 20 MCI-DLB, 15 PSY, 20 MCI-AD; 16 healthy controls (HC). Statistical analysis: - Preliminary Voxel-Based Morphometry (VBM) analysis conducted using CAT12 implemented in SPM12; - Voxel-wise comparisons of GM volume (GMV) performed using a General Linear Model (GLM), including total intracranial volume (TIV) and biological sex as covariates.	Both MCI-DLB and PSY showed widespread GMV reductions vs. HC in: - Frontal areas: superior frontal gyrus, supplementary motor area anterior/middle cingulate cortex; - Parietal areas: precuneus; further posterior cingulate atrophy (MCI-DLB) and posterior atrophy (PSY); - Temporal areas: inferior temporal and fusiform gyri, including left medial atrophy in PSY; - Occipital atrophy: cuneus; middle occipital gyrus (PSY) and early visual areas (MCI-DLB); - Subcortical areas: caudate nucleus and olfactory regions. No GMV differences detected between pro-DLB phenotypes, both showing relative hippocampal preservation vs. MCI-AD.	Pro-DLB is associated with a characteristic pattern of fronto-parieto-occipital atrophy consistent with the core clinical features of full-blown DLB. Structural MRI appears useful in differentiating pro-DLB from healthy aging and prodromal AD. The absence of macro-structural differences between pro-DLB phenotypes suggests that their clinical heterogeneity may be driven by functional or network-level alterations rather than atrophy.  HC > MCI-DLB HC > PSY $p_{FWE} < 0.05$
REFERENCES ¹ McKeith IG, et al. Research criteria for the diagnosis of prodromal dementia with Lewy bodies. <i>Neurology</i>. 2020 Apr 28;94(17):743-755. doi: 10.1212/WNL.0000000000009323. Epub 2020 Apr 2. PMID: 32241955; PMCID: PMC7274845. CONTACT desiree.conti@uniroma1.it ALZHEIMER'S ASSOCIATION AAIC >26			