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 ALZHEIMER'S IMAGING CONSORTIUM (IC)
 POSTER PRESENTATIONS
 IC-P

IC-P-001 DO CEREBELLAR PLAQUES INFLUENCE ¹⁸F-FLORBETABEN AMYLOID PET SCAN QUANTIFICATION?

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Background: Standardized uptake value ratios (SUVR) are commonly used for quantification of ¹⁸F-Florbetaben (FBB) scans. Cerebellar gray matter is used as the reference region for quantification. However, cerebellar plaques may be present in Alzheimer disease (AD). The aim of this study was to assess the influence of cerebellar plaques in FBB SUVR, when using cerebellar gray matter as the reference. **Methods:** Neuropathological assessment of cerebral (frontal, occipital, anterior and posterior cingulate) cortex and cerebellar cortex tissue from 87 end of life patients (64 AD, 14 other dementia, 9 non-demented aged volunteers; 80.4±10.2 yrs) who underwent a FBB PET before death was performed using the Bielschowsky silver stain and Amyloid β (Aβ) immunohistochemistry to quantify neuritic/cored and diffuse plaques, as absent, sparse, moderate and frequent. Mean cortical SUVRs were compared among brains with different cerebellar plaque loads. **Results:** None from the 83 evaluable cerebellar samples showed frequent cerebellar plaques. Only 1 sample showed both sparse neuritic/cored and sparse diffuse plaques. Sparse diffuse plaques were found in 33 samples, and moderate diffuse plaques in 5. Subjects with higher cerebellar plaque loads showed higher cortical Aβ

Table

	Region (n)	Cerebellar plaques			ANOVA p-value
		Absent	Sparse	Moderate	
SUVR (full sample)	Frontal (83)	1.36±0.35	1.70±0.33	1.82±0.29	<10 ⁻⁴
	Occipital (82)	1.44±0.21	1.66±0.24	1.69±0.26	0.0001
	Ant. Cing (82)	1.38±0.40	1.74±0.38	1.86±0.31	0.0001
	Post. Cing (82)	1.59±0.38	1.87±0.37	1.86±0.24	0.004
SUVR (moderate or frequent Aβ plaques)	Frontal (47)	1.64±0.30	1.77±0.28	1.73±0.24	0.39
	Occipital (44)	1.64±0.20	1.68±0.23	1.69±0.26	0.84
	Ant. Cing (26)	1.73±0.39	1.77±0.36	1.74±0.18	0.97
	Post. Cing (36)	1.93±0.37	1.95±0.34	1.79±0.20	0.69

loads and standardized uptake values. Thus, cortical SUVRs significantly increased with cerebellar plaque load (table, figure 1). However, in cortical regions with moderate or frequent Aβ plaques no significant SUVR differences were found among brains showing different cerebellar plaque loads (table, figure 2). **Conclusions:** In brains with higher cerebellar cortical Aβ loads, cerebellar plaques were found in 47% of cases, mostly as sparse diffuse plaques (40%). However, the presence of cerebellar plaques did not influence the SUVRs in these subjects with moderate or frequent cortical Aβ. Therefore, the effect of cerebellar plaques in FBB SUVR appears to be negligible even in advanced stages of AD with a high cortical Aβ load.

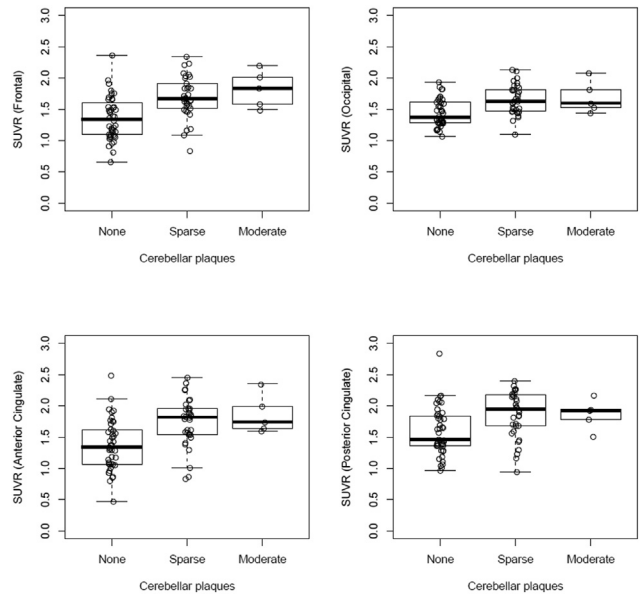


Figure 1. Full sample.

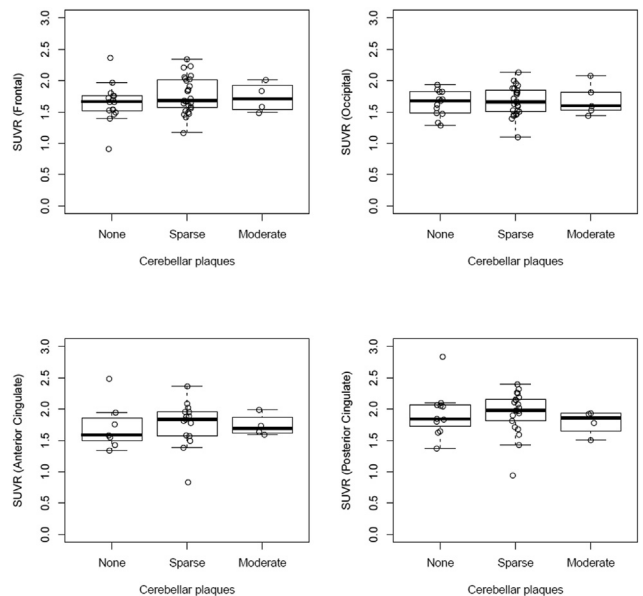


Figure 2. Moderate or frequent cortical Aβ plaques.