

Concordance of Amyloid Biomarkers in a Latin American Memory Center: PiB-PET and CSF Aβ42

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Background

¹¹C-Pittsburgh compound B-positron emission tomography (PiB-PET) is a core biomarker for the in vivo detection of Alzheimer's disease (AD) pathology, data on its correlation to cerebrospinal fluid Aβ42 (CSF) in real-world clinical performance in Latin America is limited.

We aim to describe the concordance between amyloid biomarkers, PET and CSF in a Latin American Memory Center

Methods

- We performed a retrospective analysis of all ¹¹C-Pittsburgh compound B-positron emission tomography (PET) scans acquired between 2013 and 2023 at a tertiary memory center in Buenos Aires, Argentina.
- Concordance with **cerebrospinal fluid Aβ42 (CSF)** was assessed.
- Analyses focused on patients with complete clinical characterization.
- We analyzed results across pre-test diagnostic categories.

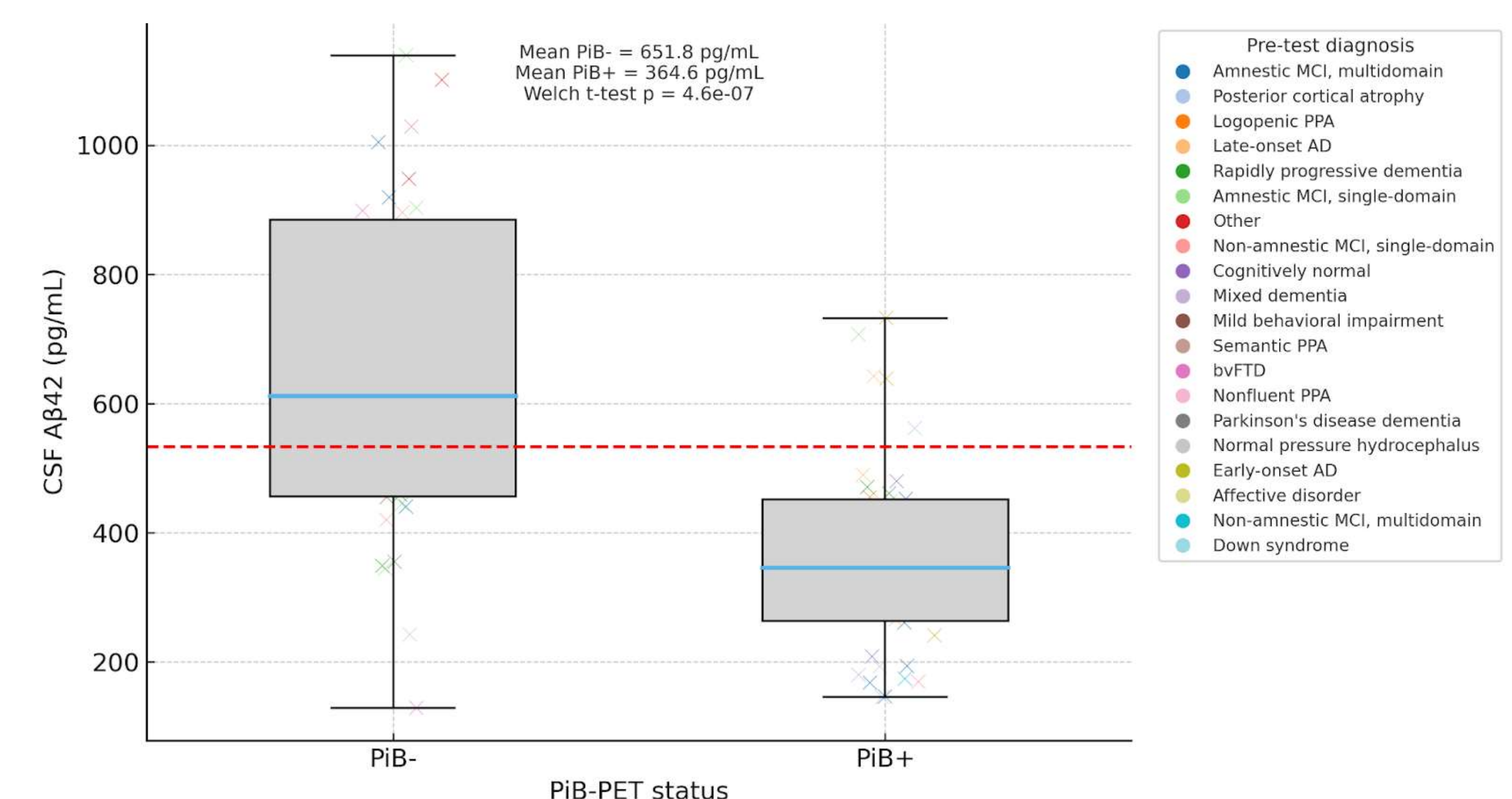
Results

- A total of 1451 PiB-PET studies were performed. Paired biomarker analysis was available for **77 internal patients**.
- Overall **concordance of 75.3%** (58/77).
- The association between PET status and CSF classification was statistically significant ($\chi^2 = 17.9$; $p = 3.37 \times 10^{-5}$).

Table 1. CSF–PET Correlation and Most Frequent Pretest Diagnoses.

PET	CSF	n=77	Most frequent pre-test diagnostic
Concordant groups (n=58)			
+	+	38	Amnesic multidomain MCI (92.3%) Late-onset Alzheimer's dementia (87.5%)
-	-	20	
Discordant groups (n=19)			
-	+	14	Pure amnesic MCI Cognitively normal status
+	-	5	Uncharacterized diagnoses Cognitively normal status Pure amnesic MCI

Figure 1. CSF Aβ42 concentrations according to PiB-PET status in the analytic biomarker cohort (n = 77).



Boxplots display the distribution of CSF Aβ42 values for PiB- and PiB+ individuals. Jittered dots represent individual patients and are color-coded according to their pre-test clinical diagnosis. The dashed horizontal line indicates the CSF Aβ42 cutoff for abnormality (533 pg/mL). Mean CSF Aβ42 values were higher in PiB- than in PiB+ cases (651.8 vs. 364.6 pg/mL; Welch's t-test $p = 4.6 \times 10^{-7}$). Only internal patients with interpretable PiB-PET, valid CSF Aβ42 measurements, and a documented pre-test diagnosis were included.

Conclusion

CSF Aβ42 and PiB-PET showed high concordance, with discordant cases mainly occurring in early or diagnostically uncertain presentations. These findings support the complementary use of both biomarkers and provide a baseline for the introduction of anti-amyloid therapies and blood-based biomarkers in Latin America.

Key Message

High CSF–PET concordance reinforces the reliability of amyloid biomarkers, while discordant cases underscore their complementary value in early and atypical presentations.

Contact information

