



Real-World Concordance of Blood-Based Biomarkers with CSF or PET in Suspected Alzheimer's Disease

Tinatin Chabrashvili, MD, PhD,¹ Saleha Qasim, MBBS²

1. Neurodegenerative Disorders Center, Department of Neurology, SUNY Upstate Medical University, Syracuse, NY, USA.
2. Department of Psychiatry, SUNY Upstate Medical University, Syracuse, NY, USA.

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Background

- Blood-based biomarkers (BBMs) for AD have demonstrated high performance in established research cohorts; however, evidence from routine neurology practice remains limited.¹
- As BBMs become clinically available, neurologists are gaining experience with diagnostic workflow integration and aligning results interpretation with clinical expectations and confirmatory amyloid pathology testing.
- This retrospective, single-practice, observational analysis examined concordance between BBMs and CSF or amyloid PET in patients evaluated for suspected AD in real-world clinical practice.

Methods

Study Design

- Adults aged 56–82 years presenting with MCI or mild dementia and suspected AD were included. Patients with CKD, ischemic or hemorrhagic stroke, or a brain mass were excluded.
- Consecutive patients were evaluated by a single neurologist in routine clinical practice at an academic neurodegenerative disorders center between November 2025 and March 2026.

Biomarker Testing

- All patients underwent plasma testing with C2N PrecivityAD2, with or without ApoE, measuring Aβ42/40 and %p-tau217 ratios.
- Following BBM testing, CSF biomarker assessment (using Elecsys p-tau181/Aβ42, p-tau181, total tau, Aβ42) or amyloid PET imaging was performed.

Analysis

- Concordance between BBM results and CSF testing or amyloid PET imaging was evaluated among patients with both test results available.
- Discordant, borderline, and pending confirmatory test results were characterized.
- Concordance was calculated descriptively, with intermediate/borderline results excluded.
- Findings should be interpreted cautiously given the small sample size and variability introduced by the use of both CSF and amyloid PET as reference standards.

Patient Categorization

- A total of 30 patients undergoing diagnostic evaluation for suspected AD were identified (**Table 1**).
- The concordance analysis population included 22 patients with available BBM test and CSF or amyloid PET results (**Figure 1**).

Concordance

- Among the 22 patients included in the concordance analysis, BBM and CSF or amyloid PET results were concordant in 20 patients (91%; **Figure 1**).
- Two discordant cases were observed; both patients were male, aged 72 years, had MCI, and were BBM-negative but amyloid PET-positive (**Table 2**).
- BBMs demonstrated high sensitivity and positive predictive value, with no false-positive results observed in this cohort (**Tables 2 and 3**).

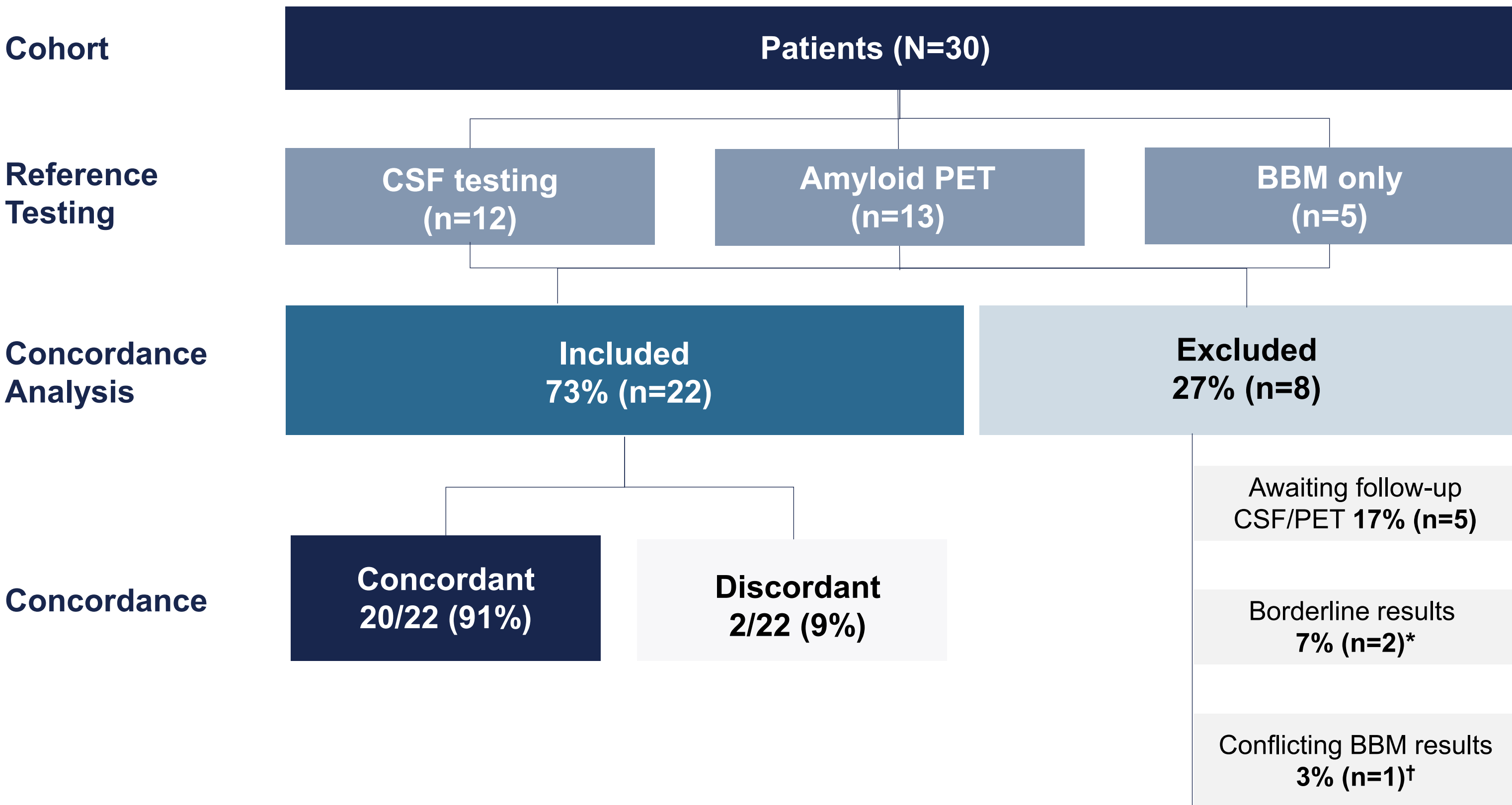
Table 1. Patient Characteristics

Characteristics	Patients (N=30)
Age (years), mean (SD)	70.2 (7.9)
Sex, n (%)	
Female	18 (60)
Male	12 (40)
Clinical Severity of Cognitive Impairment, n (%)	
MCI	21 (70)
Mild Dementia	7 (23)
Moderate/Other*	2 (7)
ApoE Genotype, n (%)[†]	
Heterozygous ε3/ε4	13 (43)
Homozygous ε4/ε4	6 (20)
Non-carrier	5 (17)
Not Genotyped	6 (20)
Biomarker Testing Received, n (%)	
BBM + CSF	12 (40)
BBM + Amyloid PET	13 (43)
BBM Only [‡]	5 (17)
BBM Test Result, n (%)	
BBM Positive	21 (70)
BBM Negative	6 (20)
Borderline/Discordant	3 (10)

*Patients with moderate severity or baseline disability were excluded from concordance analysis per protocol. [†]79% of genotyped patients carried at least one ApoE ε4 allele, which is substantially higher than the general population prevalence (~25%), reflecting the enriched AD-risk profile of this specialty neurology referral cohort. [‡]Patients awaiting follow-up CSF testing or amyloid PET.

Results

Figure 1. Patient Flow and Categorization for Concordance Analysis



*One patient had borderline results in both BBM and CSF, and one patient had negative BBM and borderline CSF results. [†]Patient underwent two BBM tests, with one positive and one negative result, followed by a positive result on amyloid PET.

Table 2. 2X2 Diagnostic Table of BBM Results versus CSF or Amyloid PET (n=22)*

	CSF/Amyloid PET Positive	CSF/Amyloid PET Negative
BBM Positive	18 (a)	0 (b)
BBM Negative	2 (c)	2 (d)

$$\text{Concordance} = (a + d) / (\text{total}) \times 100$$

*Includes patients with both BBM and PET/CSF results. Intermediate/borderline results were excluded.

Table 3. Diagnostic Performance of BBMs Relative to CSF or Amyloid PET (n=22)*

Diagnostic Performance Metric	Value, % (n)
Concordance	90.9 (20/22)
Sensitivity[†]	88.9 (16/18)
Specificity	100 (2/2)
Positive Predictive Value (PPV)	100 (18/18)
Negative Predictive Value (NPV)	50% (2/4)

*Based on the concordance analysis population with available BBM and CSF or amyloid PET results; patients with borderline results or discordant BBM platform results were excluded. [†]Sensitivity was calculated using all amyloid-positive patients in the analytic cohort (n=18) confirmed by CSF or amyloid PET. Performance estimates are preliminary and based on a small analytic cohort (N=22); confidence intervals were not calculated due to limited sample size, and results should be interpreted with caution.

Conclusions

- In this real-world neurology practice evaluation, BBM results showed strong concordance with CSF and amyloid PET, supporting their emerging role in routine diagnostic workflows.
- Two discordant cases were observed, both involving BBM-negative and amyloid PET-positive findings, highlighting the importance of confirmatory testing and continued evaluation of factors contributing to discordance.
- These preliminary findings support the potential utility of BBMs as part of the diagnostic evaluation of patients with suspected AD; however, larger studies are needed to further characterize discordant results and validate performance estimates.

References 1. Palmqvist S, et al. Alzheimer's Dement. 2025;21:e70535. **Abbreviations:** Aβ, amyloid-beta; AD, Alzheimer's disease; ApoE, apolipoprotein E; BBM, blood-based biomarker; CKD, chronic kidney disease; CSF, cerebrospinal fluid; MCI, mild cognitive impairment; NPV, negative predictive value; PET, positron emission tomography; PPV, positive predictive value; p-tau, phosphorylated tau. **Acknowledgments:** We acknowledge and thank the individuals and their families for participating in this study. **Disclosures:** No relevant disclosures to report.