

Diagnostic Performance Of Plasma Biomarkers And MoCA As Composite Index For Alzheimer’s Disease In Resource-limited Settings: An Exploratory Study



P5-003

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Plasma Aβ42 demonstrates potential as a non-invasive and accessible biomarker for Alzheimer’s disease diagnosis in Indonesia. Combining plasma Aβ42 with MoCA-INA significantly improved diagnostic performance (AUC 0.97), supporting its potential application as a practical screening approach in resource-limited settings.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS																																								
- Accurate diagnosis and finding of Alzheimer’s disease (AD) in Indonesia remains challenging due to limited access to cerebrospinal fluid (CSF) analysis and PET imaging. Plasma biomarkers such as amyloid-β42 (Aβ42) and phosphorylated tau-181 (p-tau181) offer a non-invasive and affordable alternative, but their diagnostic performance in Indonesian populations is not well established.	- A cross-sectional study was conducted involving 25 AD patients and 20 cognitively normal controls. - Plasma and CSF biomarker levels were measured using ultrasensitive immunoassay (ELISA). - Cognitive function was evaluated using MoCA-INA. - Receiver operating characteristic (ROC) curve analysis was used to assess diagnostic accuracy.	Plasma Aβ42 with the level of 9.6 pg/ml showed moderate diagnostic accuracy (AUC = 0.78, sensitivity = 69%, specificity = 70%), while its combination with MoCA-INA Score (cut-off score 35) markedly improved accuracy (AUC = 0.97, sensitivity = 85%, specificity = 88%). Plasma p-tau181 levels were higher in controls than in AD patients. <table><tr><th>Biomarkers</th><th>AUC (95%CI)</th><th><i>p</i></th><th>Sensitivity % (95%CI)</th><th>Specificity % (95%CI)</th><th>Accuracy % (95%CI)</th><th>Cutoff</th><th>Power (%)</th></tr><tr><td>Aβ42</td><td>0.78 (0.66 – 0.89)</td><td>0.00</td><td>69.2 (0.51 – 0.87)</td><td>70.6 (0.48 – 0.92)</td><td>70.0 (0.49 – 0.90)</td><td>9.6 pg/ml</td><td>93.7</td></tr><tr><td>p-tau181</td><td>0.67 (0.53 – 0.80)</td><td>0.03</td><td>61.5 (0.42 – 0.80)</td><td>50.0 (0.15 – 0.84)</td><td>55.0 (0.20 – 0.74)</td><td>28.6 pg/ml</td><td>50.3</td></tr><tr><td>p-tau181/ Aβ42 ratio</td><td>0.49 (0.35 – 0.65)</td><td>0.99</td><td>0.00 (NA)</td><td>100.0 (NA)</td><td>56.7 (NA)</td><td>6.4</td><td>2.5</td></tr><tr><td>Aβ42 and MoCA-INA (composite)</td><td>0.93* (0.86 – 0.99)</td><td>0.00</td><td>80.0 (0.64 – 0.96)</td><td>84 (0.70 – 0.98)</td><td>82.2 (0.67 – 0.97)</td><td>Aβ42 + MoCA- INA (35)</td><td>99</td></tr></table> *adjusted AUC	Biomarkers	AUC (95%CI)	<i>p</i>	Sensitivity % (95%CI)	Specificity % (95%CI)	Accuracy % (95%CI)	Cutoff	Power (%)	Aβ42	0.78 (0.66 – 0.89)	0.00	69.2 (0.51 – 0.87)	70.6 (0.48 – 0.92)	70.0 (0.49 – 0.90)	9.6 pg/ml	93.7	p-tau181	0.67 (0.53 – 0.80)	0.03	61.5 (0.42 – 0.80)	50.0 (0.15 – 0.84)	55.0 (0.20 – 0.74)	28.6 pg/ml	50.3	p-tau181/ Aβ42 ratio	0.49 (0.35 – 0.65)	0.99	0.00 (NA)	100.0 (NA)	56.7 (NA)	6.4	2.5	Aβ42 and MoCA-INA (composite)	0.93* (0.86 – 0.99)	0.00	80.0 (0.64 – 0.96)	84 (0.70 – 0.98)	82.2 (0.67 – 0.97)	Aβ42 + MoCA- INA (35)	99	Plasma Aβ42 combined with MoCA-INA offers a feasible and accurate non-invasive approach for AD diagnosis in resource-limited settings, supporting its potential clinical use in Indonesia. REFERENCES ALZHEIMER’S ASSOCIATION AAIC>26
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