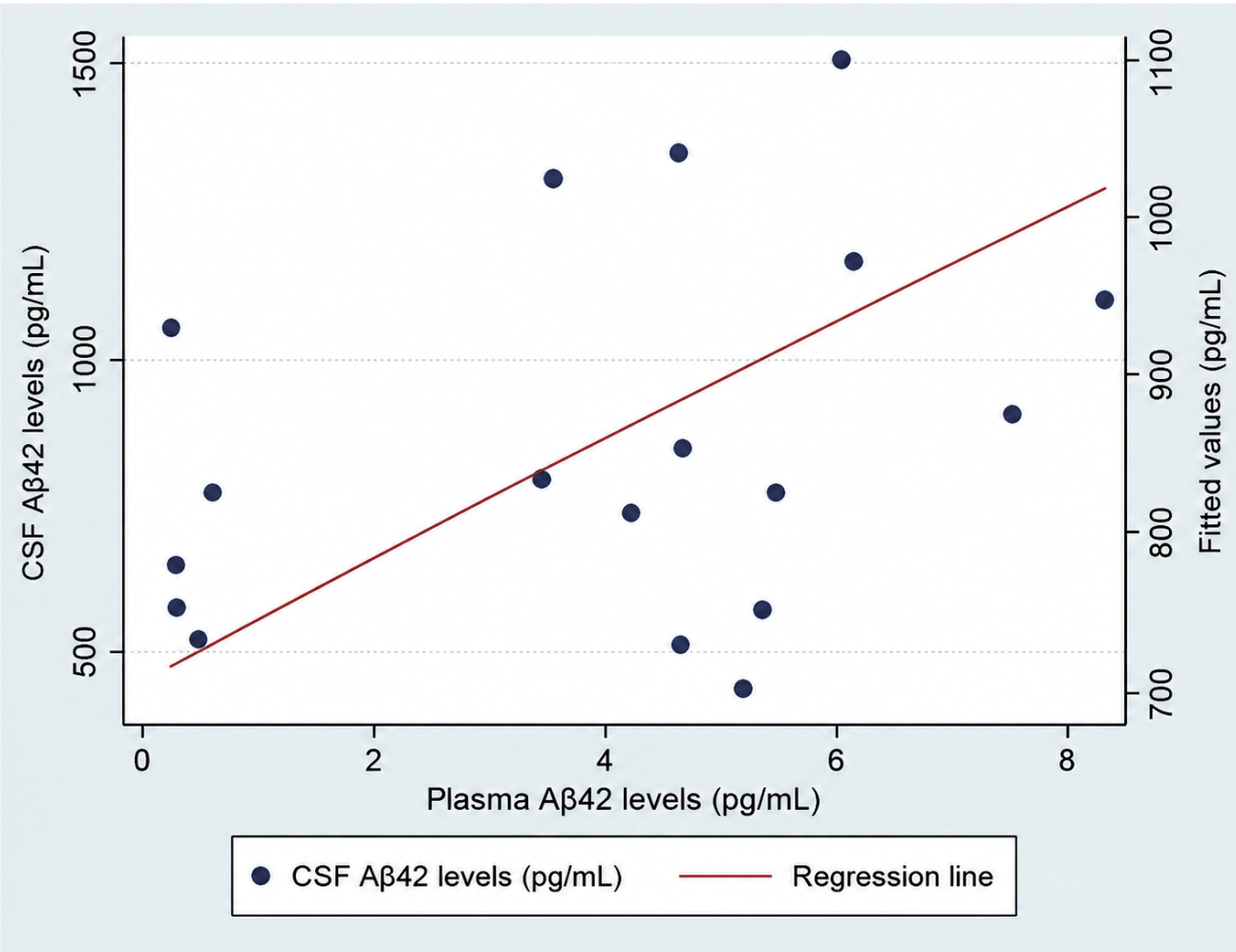


Is There a Correlation between Plasma and Cerebrospinal Fluid Amyloid Beta 1-42 Levels in Patients with Alzheimer’s Dementia?

Cynthia¹, Jusak Nugraha², Muhammad Hamdan², Rahajuningsih Dharma³, Margarita M. Maramis², Hari Basuki Notobroto⁴, Reny I’tishom¹, Gwenny Ichsan Prabowo⁵, Achmad Fahmi², Silvia Francina Lumempouw⁶, Made Ayu Wedariani⁶

¹Doctoral Program of Medical Science Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.
²Dr. Soetomo General Academic Hospital, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.
³Department of Clinical Pathology, Faculty of Medicine, Universitas Tarumanagara, Jakarta, Indonesia.
⁴Department of Epidemiology, Biostatistics, Population Studies and Health Promotion, Faculty of Public Health, Universitas Airlangga, Surabaya, Indonesia.
⁵Department of Physiology and Medical Biochemistry, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.
⁶Department of Neurobehaviour, Motoric Disorder, and Neurogeriatry Prof Dr dr Mahar Mardjono National Brain Center Hospital, Jakarta, Indonesia.

Plasma Aβ42 levels were not correlated with CSF Aβ42 levels in patients with Alzheimer’s disease, suggesting that plasma Aβ42 may not directly reflect central amyloid pathology. Therefore, plasma Aβ42 cannot currently be considered a substitute for CSF Aβ42 measurements in the assessment of amyloid pathology. Further studies with larger samples and standardized methods are needed.

BACKGROUND	OBJECTIVE	METHODS	RESULTS	CONCLUSION
Amyloid beta 1-42 (Aβ42) is a core biomarker in the pathophysiology of Alzheimer’s disease (AD). Decreased Aβ42 levels in cerebrospinal fluid (CSF) reflect cerebral amyloid deposition and are well established for the biological diagnosis of AD. In response to the growing demand for minimally invasive biomarkers, plasma Aβ42 has been widely investigated; however, evidence regarding its relationship with CSF Aβ42 remains inconsistent.	To assess the correlation between plasma and CSF Aβ42 levels in patients with Alzheimer’s disease and to explore potential factors influencing the relationship between central and peripheral amyloid biomarkers.	An analytical observational study was conducted involving eighteen patients with a clinical diagnosis of Alzheimer’s disease. Plasma and CSF Aβ42 concentrations were measured using enzyme-linked immunosorbent assay (ELISA). Correlation analysis was performed using Pearson’s correlation test, as the distributions of plasma Aβ42 levels (p = 0.064) and cerebrospinal fluid Aβ42 levels (p = 0.272) were normally distributed.	No significant correlation was observed between plasma and CSF Aβ42 levels (r = 0.34; p = 0.174).  Figure 1. Scatterplot of the correlation between plasma X Aβ42 levels and CSF Aβ42 levels	Plasma Aβ42 levels do not directly reflect CSF Aβ42 levels in patients with Alzheimer’s disease. Discrepancies between central and peripheral Aβ42 measurements may be influenced by differences in assay methodology, blood-brain barrier transport, protein binding, enzymatic degradation, and peripheral clearance mechanisms. Keywords: Alzheimer’s disease; amyloid beta 1-42; plasma biomarkers; cerebrospinal fluid; ELISA
CONTACT  Email: jusak-n@fk.unair.ac.id; cynthiazakharia@yahoo.com  ALZHEIMER'S ASSOCIATION AAIC 26				