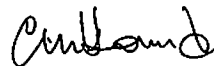


CERTIFICATE OF ATTENDANCE

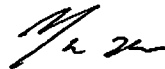
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Beta Amyloid Plasma as Early Biomarker for Cognitive Impairment After Stroke



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BACKGROUND

Disability after stroke is even burdened by cognitive function impairment. Current diagnostic methods available now is not sensitive enough to detect early cognitive impairment after stroke. The level of beta-amyloid (A β) in the cerebrospinal fluid (CSF) can be used as a marker to detect cognitive impairment, but the CSF retrieval technique is invasive, so it is necessary to find biomarkers that are relatively easy, cheap and reliable. Therefore, biomarker that can be measured in plasma is needed. Aims to investigate the association of the plasma levels of beta amyloid with cognitive impairment after stroke.

METHODS

It is an observational study designed as cross-sectional study using 84 patients with ischemic stroke. Cognitive function was evaluated three months after stroke using MoCA-Ina test and measurement of plasma level of A β 40 and A β 42 within 72 hours of onset of stroke. Datas were analyzed using regression analysis to establish the most dominant factors related to the impaired cognitive function after stroke.

RESULTS

Table 1. Clinical Characteristic

	Impaired cognitive function	Normal cognitive function	p
Age (year)			
- ≥ 60	27	15	0.029
- < 60	17	25	
Education (year)			
- > 9	37	18	< 0.001
- ≤ 9	7	22	
Sex			
- Male	19	22	0.279
- Female	25	18	
Blood Pressure			
- Hipertension	38	6	0.625
- Normotension	33	7	
Glycemia			
- Hyperglycemia	7	7	

Table 2. The Association of Plasma Level of A β 40 and A β 42 with MoCA-Ina Assesment

	Impaired cognitive function	Normal cognitive function	p
Mean level of A β 40	395.75 (9.6-565.7) pg	539.56 (285.69-1185.22) pg	$< 0.001^*$
Mean level of A β 42	20.51 (0.9-66.04) pg	35.57 (0.26-88.19) pg	0.001*

*Mann Whitney Test

The association of the plasma level of A β 40 and A β 42 with cognitive function can be seen in Table 3 below. Since each variable has no standard normal, the classification between low or high level was determined by calculating cut off point of each variable using the Receiver Operating Characteristic procedure (ROC), so that each variable can be grouped based on the value of the cut off the point. The high level was considered if the level obtained is higher then the cut off point and vise versa.

Table 3. The Association of Plasma Level of A β 40 and A β 42 with Cognitive Function

Variable	Cognitive function		p	OR
	Impaired n = 44	Normal n = 40		
Low level A β 40	24	3	$< 0.001^*$	14.80 (3.96- 55.28)
High level A β 40	20	37		
Low level A β 42	22	9	0.017*	3.44 (1.33 - 8.89)
High level A β 42	22	31		

* Pearson Chi-Square

Table 4. Mutivariate Regression

	Variabel	Coefisien	p	OR
Step 1	A β 40	2.597	< 0.001	13.43
	A β 42	1.048	0.055	2.85

CONCLUSION

Low plasma level of A β 40 is associated with the incidence of impaired cognitive function after stroke.

References

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