

# Prevalence of Antiplatelet Resistance in Ischemic Stroke Patients: Is Hypertension Contribute to Antiplatelet Resistance?

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# Prevalence of antiplatelet resistance in ischemic stroke patients: Is hypertension contribute to antiplatelet resistance?

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## INTRODUCTION

Antiplatelet resistance correlate to ischemic vascular disease recurrence. The data about prevalence of antiplatelet resistance in Indonesia is limited. The determinant factor of antiplatelet resistance in Indonesia is debatable.

## OBJECTIVE

This study aimed to identify the correlation of hypertension and antiplatelet resistance in ischemic stroke patients.

## METHOD

This study was a cross sectional study, conducted at Bethesda Hospital, Yogyakarta, Indonesia. Subjects in this study were an ischemic stroke patients. The data obtained from electronic stroke register.

The inclusion criteria including: (i) age >18 years, (ii) male or female, (iii) had an ischemic stroke confirmed by neurological examination and brain imaging (CT Scan or MRI), and (iv) receiving antiplatelet therapy (aspirin 80 mg and/or clopidogrel 75 mg).

Venous blood was collected in a tube contain 3.2% natrium citrate. The sample was measured by using Verify Now analyzer. Aspirin resistance was defined as an ARU (aspirin reaction units)  $\geq 550$  and clopidogrel resistance was defined as P2Y12  $\geq 230$ .

Univariate analysis used to determine the characteristics of the subjects. Chi square test, as a bivariate analysis, was performed to identify the significant factors in the incidence of antiplatelet resistance.

## RESULTS

There were total of 83 subjects included in this study. The subjects dominated by male (75.9%), age >60 years (53%). More than 50% of the subjects had a recurrent stroke. The most common symptom was limb weakness (72.3%).

There were 5 stroke risk factors observed in this study: dyslipidemia, hypertension, ischemic heart disease, atrial fibrillation, and type 2 diabetes mellitus. Hypertension was the most common risk factor (60.2%).

Urinary tract infection, pneumonia, decubitus ulcer, and gastrointestinal bleeding were complications observed in this study. Only 7 subjects experienced a complication during hospitalization. Gastrointestinal bleeding was the most common complication (3.6%).

There were 71 subjects who underwent ARU test, 8 subjects who underwent P2Y12 test, and 4 subjects who underwent both tests. From 83 subjects, 25 (30.1%) among them were resistant to antiplatelet.

Further analysis was conducted to identify the determinant factors that influence antiplatelet resistance. Hypertension was not related to antiplatelet resistance ( $p : 0.314$ ).

Table 1. Antiplatelet Resistance Tests

Tests	n	%
ARU	71	85.5
P2Y12	8	9.6
ARU + P2Y12	4	4.8

Table 2. Bivariate Analysis

Characteristics	Resistant	Normal	p	
Age	>60	17 (38.6)	27 (61.4)	0.072
Gender	Male	17 (27.0)	46 (73.0)	0.269
Stroke History	Recurrent Stroke	12 (31.6)	26 (68.4)	0.790
Stroke Symptoms	Limb Weakness	16 (63.9)	44 (75.9)	0.268
	Face Dropping	0 (0)	2 (100)	0.347
	Slurred Speech	7 (29.2)	17 (70.8)	0.904
	Aphasia	1 (25.0)	6 (75.0)	0.740
Stroke Risk Factors	Dyslipidemia	10 (23.8)	32 (76.2)	0.205
	Hypertension	13 (26.0)	37 (74.0)	0.314
	DM2	11 (35.5)	20 (64.5)	0.411
	IHD	1 (25.0)	3 (75.0)	0.819
	AF	1 (33.3)	2 (66.7)	0.902
Complications	UTI	0 (0)	1 (100)	0.509
	Pneumonia	0 (0)	1 (100)	0.509
	Decubitus Ulcer	1 (50.0)	1 (50.0)	0.535
	GIT Bleeding	0 (0)	3 (100)	0.247

## CONCLUSION

The incidence of anti platelet resistance in ischemic stroke patients is high. Hypertension is not related to antiplatelet resistance.

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