

## CHARACTERISTIC OF FACTORS ASSOCIATED WITH ADMISSION TIME OF STROKE PATIENTS IN HOSPITAL

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### ABSTRACT

**Introduction:** Stroke is a major cause of disability and death in Indonesia. Based on Riskesdas 2013 data, the incidence of stroke in North Sulawesi was ranked second after hypertension. Early management of stroke contributes to have better outcome. Our hospital data showed limited number of stroke patients who were admitted in early onset. We investigated factors related to admission time of stroke patients in RSUP Prof. dr. R. D Kandou Manado during 2015-2017. **Method:** This was a retrospective study using secondary data from stroke patients who met the eligibility. The statistical analysis was performed with Chi-square test with SPSS. **Result:** There were 1060 patients that were interviewed; only 0,5 % came in less than and equal 4 hours. There were 62% male. The mean age was 57,47 years. Of all patients, 47,1% patients had stroke ischemic and 52,8% patients had stroke hemorrhage. Those who delayed admission to the hospital beyond 4 hours were 98,3% patients did not recognize the urgency of immediate help for their symptoms and 99,8% patients traveled more than 10 km to reach our hospital. **Conclusion:** Approximately one-quarter of stroke patients correctly interpret their symptoms as representing a stroke. This knowledge was associated with delayed admission to the emergency department. Widespread public education of stroke-prone individuals may increase the proportion of patients eligible for new acute stroke treatments.

**Keywords:** Admission time, stroke, knowledge.

### BACKGROUND

Stroke is a major cause of disability and death in Indonesia. Based on Riskesdas 2013 data in North Sulawesi, the incidence of stroke is ranked to second <sup>(1,2)</sup>. Management on the onset of stroke as early as possible will give satisfactory results. Our hospital data show the low number of stroke patients who come with early onset. Prompt treatment of stroke, whether as *thrombolytic* therapy for *ischemic* stroke or blood pressure control of *hemorrhagic* stroke, is critical for improving patient outcome. (3) Early hospital arrival is crucial for reperfusion therapy using *tissue plasminogen activator (tPA)*. <sup>(3-10)</sup> The phrase time is brain emphasizes that human *nervous tissue* is rapidly and irretrievably lost as stroke

progress and those therapeutic interventions should be emergently pursued. R-tPA is currently the only Food and Drug Administration (FDA)-approved therapy for treatment of patients with acute stroke. <sup>(3-10)</sup> The therapeutic window is less than four and half hours and best results can be achieved with administration within 90 minutes. However, only a small proportion of patients with acute stroke are currently eligible for *thrombolysis* because of excessive delay in presentation to hospital. <sup>(3-10)</sup>

### METHODS

This is a retrospective study within a period of Januari 2015 to April n 2017 in the Department of Neurology Medical Faculty Sam Ratulangi

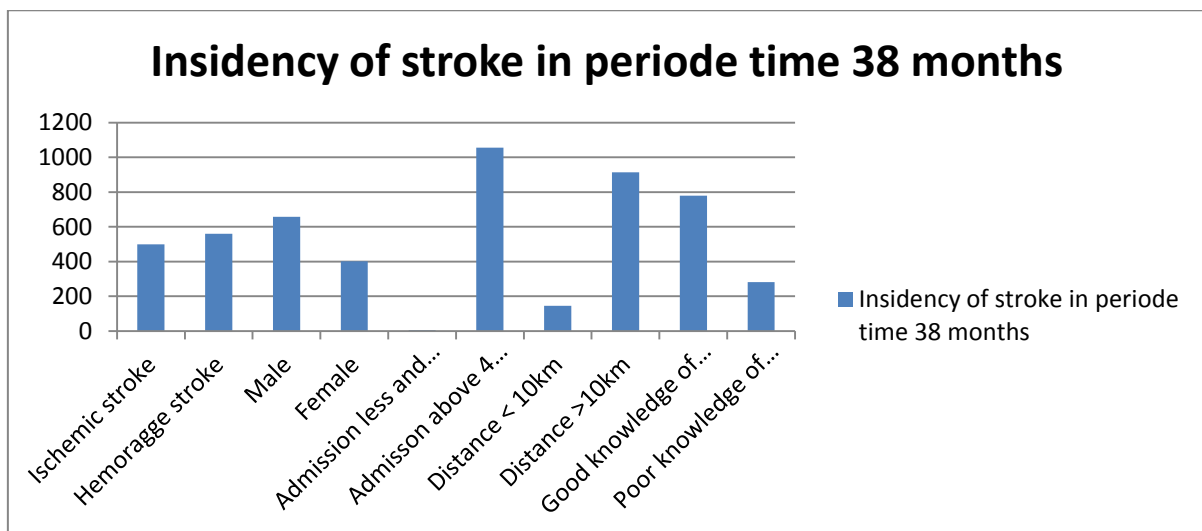
University/Prof.dr.R.D. Kandou Hospital Manado North Sulawesi, Indonesia. All patients of both gender, age >15 years with symptoms of stroke and neuro-imaging *computed tomography* (CT) scan findings consistent with stroke were included. Patients with in-hospital stroke were excluded from the study. All patients who came to the Emergency Room (ER) of our center presenting with the symptoms of stroke were evaluated by the on-call Neurologist. A thorough clinical examination was conducted. Time of stroke onset was defined as the time the patient or an observer first noticed a neurological deficit. The exact time of arrival at the hospital is routinely marked on the form of ER. According to the time of presentation to the hospital after the onset of stroke symptoms, the patients were sub classified as arrives <4 hours and arrives > 4 hours. The questionnaire documented the patient's age, sex, educational level and information regarding the mode of transport to the hospital and the distance. The

distance traveled by the patients to the hospital was categorized as 10 km or less and more than 10 km. Consciousness was assessed by Glasgow Coma Scale (GCS) the stroke severity was documented using the National Institute of Health Stroke Scale (NIHSS). Data were analyzed by using statistical package of social sciences (SPSS) version 21.

**RESULTS**

During the 38-months observational period, There were 1060 patients that interviewed; only 0,5 % came less and equal 4 hours. There were 658 males and 402 females. The mean age was 57,47 years. Of all patients, 500 (47,1%) patients had stroke ischemic and 560 (52,8%) had stroke hemorrhage. Those who delayed admission to the hospital beyond 4 hours were 281 (98,3%) did not recognize the urgency of immediate help for their symptoms and 912 (99,8%) traveled more than 10 km to reach our hospital.

Tabel 1 Insidency of stroke in periode time 38 months



Tabel 2 Results

Variable	Less and equal 4 hours (mean)	Above 4 hours (mean)	p-value
Stroke: - Hemorrhage - Ischemic	Hemorrhage 99,4% Ischemic 0,6%	Hemorrhage 99,6% Ischemic 0,4%	$P < 0,899$
Distance: - <10km - >10km	2,1% 0,2%	97,9% 99,8%	$P < 0,21$
Knowledge of stroke: - Poor - Good	Poor 0,7% Good 0,6%	Poor 98,3% Good 99,4%	$P < 0,174$

## CONCLUSION

Approximately one-quarter of stroke patients correctly interpret their symptoms as representing a stroke. This knowledge is not associated with early presentation to the emergency department. Widespread public education of stroke-prone individuals may increase the proportion of patients eligible for new acute stroke treatments.

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