

CHARACTERISTICS OF DEPRESSION IN NON-HEMORRHAGIC STROKE PATIENTS IN SANGLAH HOSPITAL, DENPASAR

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Abstract: This study aims to describe the characteristics of depression in non-hemorrhagic stroke patients that experience treatment in Sanglah Hospital Denpasar from August to October 2019. Data obtained and analyzed using a retrospective descriptive method using the Hamilton Depression Assessment Scale questionnaire to patients and medical records review. Variable constructs consisted of Age, Gender, Occupation, Location of the Lesion, Depression Scale Value, and Stroke Severity Scale (NIHSS). The results explained that there were 27 patients (52.9%) with depression levels from an acute non-hemorrhagic stroke. Based on age, a total of 8 patients (15.7%) in the 65-74 years age group experienced mild depression and four people (7.8%) in the 55-64 years age group experienced moderate depression. Based on Gender, there were 17 male patients (33.3%) with mild depression and six people (11.8%) male patients with moderate depression. Based on workgroups, a total of 7 retired patients (13.7%) experienced mild depression and three retired patients (5.9%) with moderate depression. Based on the location of the lesions in the left hemisphere, there were 17 (33.3%) patients with mild depression and nine patients (17.6%) with moderate depression. This study produces recommendations for improving archival records and medical records through electronic file storage and the importance of further research on risk factors for depression to collect data that represents the population so that it can be used as a daily clinical guide.

Keywords: Depression, Stroke, non-hemorrhagic, Hamilton Depression Scale (HAM-D).

I. INTRODUCTION

Non-hemorrhagic stroke is an episode of neurological dysfunction caused by cerebral, spinal, or retinal cell death. According to the basis of pathology, imaging, or other objective evidence of cerebral, spinal, or retinal focal ischemic injury in certain vascular distributions; or clinical evidence of ischemic injury based on the appearance of symptoms lasting 24 hours or until death, and other etiologies are excluded.^[1]

Depression is a common complication on stroke and characterized by mood disturbances, senses of guilt, and sadness. Depression has become a significant factor that inhibits the recovery of neurological function and daily activities in stroke patients and creates social stiffness in patients as well as an increase in mortality rates for stroke patients.^[2] Depression after any stroke commonly goes chronic and occurs in disadvantageous health outcomes, including an increase in disability, morbidity, and mortality.^[3]

Depression positively correlated with age; elder patient tends to have a higher risk of depression.^[4] There are significant variations in depression and stress in particular age groups. The occurrence of depression in stroke patients is considerably higher on patients with a younger age.^[5]

Based on sex criteria, women patients have more tendency to experience depression, indicated by the 10-25% depression prevalence in women and 5-12% in men.^[6] Compared to men, women got a double risk of experiencing depression; driven by hormonal differences, giving birth effects, variations in psychosocial stress for women and men, and behavioral models regarding hopelessness.^[7]

According to lesions position, lesions in the left hemisphere associated with higher depression cases. The severity of depression also related to the gap within the lesion and the anterior hemisphere poles. Other pathoanatomy parameters, such as the volume of the lesion, cortical / subcortical atrophy, do not explain a precise correlation with the severity of depression.^{[8], [9]}

II. MATERIAL AND METHODS

This study using a retrospective descriptive method built upon (i) primary data from Hamilton's questionnaire on all acute non-hemorrhagic stroke patients in Sanglah Hospital, Denpasar from August to October 2019 results and (ii) secondary data collection from medical records. Inclusion criteria in this study included all acute non-hemorrhagic stroke patients who experienced treatment for seven days, according to Sanglah Hospital Clinical Pathway for inpatients. Patients with unconsciousness also, patients who refuse to share their personal, social, and medical information were excluded from this study. The data analyzed based on the number of cases, respondent characteristics, depression level, age range, sex, occupation, and lesion location.

This study determined the patient's characteristics based on depression level, age, sex, occupation, and location of the lesion. The patient's age range divided into seven groups. Patient occupation divided into eight groups; Civil Servants / TNI / POLRI, Private Employees, Entrepreneurs, Agriculturist, Laborers, Housewives, Pensioners, and others. The patient's lesion location divided into the left hemisphere or right hemisphere. Characteristics of depression levels from this study are based on the division of depression levels by the Hamilton Rating Scale for Depression (HRSD), measured based on Hamilton's questionnaire assessment scores. This study ethically approved by the Ethics Commission of the Faculty of Medicine, Udayana University.

III. RESULT AND DISCUSSION

A. Result

This study found that 51 patients with acute non-hemorrhagic stroke coming from 19 years to 79 years age range. Thirty-one male patients (60.8%) and 20 female patients (39.2%) are observed. Based on the location of the lesion, 29 patients (56.9%) experience lesions in the left hemisphere, while the rest 22 patients (43.1%) experienced lesions in the right hemisphere.

Table 1. Respondent Characteristic

Respondent Characteristic	Patient Number n (%)		
Age	15-24	1 (2%)	
	25-34	1 (2%)	
	35-44	5 (9.8%)	
	45-54	10 (19.6%)	
	55-64	18 (35.3%)	
	65-74	11 (21.6%)	
	≥75	5 (9.8%)	
Sex	Male	31 (60.8%)	
	Female	20 (39.2%)	
Occupation	Civil Servant /TNI/POLRI	7 (13.7%)	
	Employees	5 (9.8%)	
	Entrepreneur	7 (13.7%)	
	Agriculturist	6 (11.8%)	
	Laborer	6 (11.8%)	
	Housewives	7 (13.7%)	
	Pensioners	12 (23.5%)	
	Other	1 (2%)	
	Location of Lesion	Left Hemisphere	29 (56.9%)
		Right Hemisphere	22 (43.1%)

Table 1. shows that the highest proportion of non-hemorrhagic strokes occurred in 18 patient (35.3%) from the age range of 55-64 years old, 31 patient (60.8%) from male gender, 12 patient (23.5%) from retired work and 29 patient (56.9%) with lesions in the left hemisphere.

Table 2. Depression Characteristics among patients with acute non-hemorrhagic stroke

Depression scale	Patient Number n (%)
Normal	13 (25.5%)
Mild Depression	27 (52.9%)
Moderate Depression	11 (21.6%)
Severe Depression	0 (0%)
Very Severe Depression	0 (0%)

Table 2. shows the depression characteristics among patients with acute non-hemorrhagic stroke highest proportion was in mild depression, which contains of 27 people (52.9%).

Table 3. Age Range Characteristic Among Patients with Acute Non-Hemorrhagic Stroke

Respondent Characteristic		Depression Rate		
		n (%)		
		Normal	Moderate	Serve
Age (Year)	15-24	0 (0%)	1 (2.0%)	0 (0%)
	25-34	1 (2.0%)	0 (0%)	0 (0%)
	35-44	1 (2.0%)	3 (5.9%)	1 (2.0%)
	45-54	2 (3.9%)	6 (11.8%)	2 (3.9%)
	55-64	7 (13.7%)	7 (13.7%)	4 (7.8%)
	65-74	1 (2.0%)	8 (15.7%)	2 (3.9%)
	≥75	1 (2.0%)	2 (3.9%)	2 (3.9%)
Total		13 (25.5%)	27 (52.9%)	11 (21.6%)

Table 3. shows that 8 (15.7%) acute non-hemorrhagic stroke patients from the age range of 65 to 74 years old experienced the mildest depression. In contrast, the highest number of patients with moderate depression happened in 4 patients (7.8%) in the age range of 55-64 years old.

Table 4. Sex Characteristic Among Patients with Acute Non-Hemorrhagic Stroke.

Respondent Characteristic		Depression Rate		
		n (%)		
		Normal	Moderate	Serve
Sex	Men	8 (15.7%)	17 (33.3%)	6 (11.8%)
	Woman	5 (9.8%)	10 (19.6%)	5 (9.8%)
Total		13 (25.5%)	27 (52.9%)	11 (21.6%)

Table 4. shows that men in mild or moderate depressive disorders results are more dominant compared to women's results. In the case of mild depression, 17 men (33.3%) and ten women (19.6%) are observed. In moderate depression, six men (11.8%) and five women, 5 (9.8%), are observed. The quantity of mild depression is more numerous than moderate depression in both women and men.

Table 5. Occupation Characteristic Among Patients with Acute Non-Hemorrhagic Stroke.

Respondent Characteristic	Depression Rate		
	n (%)		
	Normal	Moderate	Severe
CivilServant/TNI/ POLRI	3 (5.9%)	3 (5.9%)	1 (2.0%)
Employees	1 (2.0%)	3 (5.9%)	1 (2.0%)
Entrepreneur	0 (0%)	6 (11.8%)	1 (2.0%)
Agriculturist	1 (2.0%)	4 (7.8%)	1 (2.0%)
Laborer	4 (7.8%)	1 (2.0%)	1 (2.0%)
Housewives	2 (3.9%)	2 (3.9%)	3 (5.9%)
Pensioners	2 (3.9%)	7 (13.7%)	3 (5.9%)
Other	0 (0%)	1 (2.0%)	0 (0%)
Total	13 (25.5%)	27 (52.9%)	11 (21.6%)

Table 5. Shows the highest number of patients with mild depression occurred in 7 (13.7%) retired patients. The number of patients with moderate depression occurred in 3 (5.9%) housewives and 3 (5.9%) retirees.

Table 6. Location of Lesion Among Patients with Acute Non-Hemorrhagic Stroke

Respondent Characteristic	Depression Rate		
	n (%)		
	Normal	Moderate	Severe
Left Hemisphere	3 (5.9%)	17 (33.3%)	9 (17.6%)
Right Hemisphere	10 (19.6%)	10 (19.6%)	2 (3.9%)
Total	13 (25.5%)	27 (52.9%)	11 (21.6%)

Table 6. Shows that 17 patients (33.3%) with lesions on the left side of their hemisphere encounter a mild depression. While nine patients (17.6%) with lesions on the left side of their hemisphere experience moderate depression.

B. Discussion

This study shows that the number of mild depressions was higher than other levels of depression; 27 (52.9%) of total respondents confirm. In line with a study by Merlin^[10] that explains 20 out of 51 people experience mild depression compared with other levels of depression in stroke patient. Research by Dudung et al. B also found that mild depression displayed the highest percentage rate; 11 people (45.8%). Depression that happens in stroke patients tends to be mild, most of the depression cases only appear at follow-up treatment.^[11]

According to respondent age range, this study explained that the highest incidence of mild depression happened in 8 people (15.7%) in the age range of 65-74 years, while 4 (7.8%) people with moderate depression occurred in the age range of 55-64 years. Dudung et al^[11] in his study, stated that 6 (25%) patients with acute non-hemorrhagic stroke experienced mild depression were in the age range if 60-74 years. On the other hand, five patients (20.8%) hold moderate depression in the age range of 45-59 years. A study by Nurlita^[12] also showed that mild depression symptoms happened in 19 people (76%) in the age range of 45-64 years, while moderate depression symptoms remarked common in of 9 people (75%) in the age range of 45-64 years.

Higher levels of depression occur in patient with a younger age range because they forced to limit their daily activities. Most of the stroke patient with older age range have just a little daily activity, resulting older patient did not have a lot of social problem.^[13]

Based on the sex parameter, male patients tend to feel more depressed compared to females' patients. 17 (33.3%) male patients experience mild depression, and six male patients (11.8%) experienced moderate depression. A study by Dudung et al.,^[11] declared that men struggled more with mild and moderate depression. Singh et al.,^[14] in his study, also found that depressive symptoms in post-stroke patients were more prevalent in males, which was 59%.

This fact might happen due to physical disabilities in men, especially in their productive age, which became influential for men's performability. The fact that male coping strategies are worse than women due to their inability to work after a stroke. This significant difference may also occur due to variations in psychosocial stressors between men and women.^[15]

Based on occupational classification, 7 retired patient (13.7%) are common with mild depression while the number of patients with moderate depression occurred in 3 (5.9%) housewives and 3 (5.9%) retirees. Qamar^[16] in his research stated that the prevalence of depression was higher in workers at 46.7% while those who did not work were only 33.3%. A study by Dudung et al.^[11] also stated that the incidence of mild and moderate depression was higher in patients who previously had jobs.

Work inability due to stroke conditions will significantly affect the physical and mental health of a person. Most adults spend their time at work, and therefore a feeling of hopelessness when there is a shift from productivity to unproductivity potentially cause depression.^[17]

Based on the location of the lesion, it was found that the incidence of mild depression (33.3% patients) and moderate depression (17.6% patient) remained higher in patients with acute non-hemorrhagic stroke with lesions located in the left hemisphere. Chemerinski and Robinson^[18] in their study found the same thing where 14 out of 22 (64%) acute stroke patients with left hemisphere located lesion had major and minor depression. On the other hand, only 2 out of 14 (14%) stroke patients with right hemisphere located lesion were depressed. Nurlita^[12] also stated that the highest proportion of depression symptoms after the stroke occurred in the left hemisphere. This case happens on 13 people (52%) in mild depression, nine people (75%) in moderate depression symptoms, and 16 people (76.2%) in severe depression symptoms.

Depression rate is higher in the left-hemisphere located lesions due to amin-biogenic dysfunction in the formation of serotonin and norepinephrine depletion due to frontal lesions and basal ganglia. Lesions in the left hemisphere cause amin-biogenic reduction; without compensating and controlling serotonin elevations, it will be resulting in depression symptoms. In right hemisphere lesions, serotonin regulation elevations occur as compensatory mechanisms that tend to be protective against depression.^[19]

IV. CONCLUSION

According to characteristics of depression in non-hemorrhagic stroke patients that experience treatment in Sanglah Hospital Denpasar from August to October 2019, there were 27 patients (52.9%) with depression levels from an acute non-hemorrhagic stroke. Based on age, a total of 8 patients (15.7%) in the 65-74 years age group experienced mild depression and four people (7.8%) in the 55-64 years age group experienced moderate depression. Based on Gender, there were 17 male patients (33.3%) with mild depression and six people (11.8%) male patients with moderate depression. Based on workgroups, a total of 7 retired patients (13.7%) experienced mild depression and three retired patients (5.9%) with moderate depression. Based on the location of the lesions in the left hemisphere, there were 17 (33.3%) patients with mild depression and nine patients (17.6%) with moderate depression.

This study produces recommendations for improving archival records and medical records through electronic file storage and the importance of further research on risk factors for depression to collect data that represents the population so that it can be used as a daily clinical guide.

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