Original Research Article

Characteristics of geriatric neurology patients treated at the central hospital of Sanglah Denpasar in 2019

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ABSTRACT

Background: According to the World Health Organization (WHO), an elderly person is someone who has entered the age of 60 years and above whose percentage tends to increase along with decreasing morbidity of the elderly. Geriatric Neurology itself is the study of a group of neurological diseases in the elderly. Based on 2012 data, the proportion of elderly population in Indonesia is 7.59%. This is accompanied by an increase in the dependency ratio of the productive age population to the non-productive age population. The results of the 2013 Basic Health Research showed an increase in the prevalence of neurological disease in the elderly which was the main cause of death in 15 regencies in 2011. It is to find out the 5 most neurological diseases in the elderly, clinical characteristics and outcomes of geriatric neurology patients treated at the Central Hospital of Sanglah.
Methods: It is a retrospective study using no control by looking at medical records in geriatric neurology patients aged 60 years and over who visited the Central Hospital of Sanglah in the March to May 2019 period.
Results: A total of 200 patients consisted of 111 men (55.5%) and 89 women (44.5%) who were divided into 5 most geriatric neurology diseases which included 1. ischemic stroke, 2. bleeding stroke, 3. brain tumor, 4. injury head, and 5. epilepsy. The number of deaths was 16, of which 7 cases were caused by sepsis and pneumonia.
Conclusions: Stroke, tumors, head injuries and epilepsy are the dominant neurological diseases found. The focus of care and supervision of elderly neurology patients is expected to be further enhanced to prevent side effects that will extend the patient's treatment period in the hospital which will automatically increase the burden on the hospital itself.

Keywords: Elderly, Epilepsy, Geriatric neurology, Head injury, Stroke, Tumor

INTRODUCTION

The definition of elderly according to the World Health Organization (WHO) is someone who has entered the age of 60 which is divided into early elderly, late elderly, and very late elderly that is above 90 years.[1,2] Geriatric neurology itself is the study of a group of neurological diseases in the elderly.[3,4] As authors age, there will be physical changes such as changes in hair and skin.[5,6] In addition, there are also changes in the brain and central nervous system.[7,8] This is one reason that the possibility of suffering from problems in the field of neurology is greater after entering the age above 60 years which stimulation is needed for plasticity of brain cells.[9]

According to the Center for Data and Information of the Ministry of Health of the Republic of Indonesia, the increase in the percentage of elderly population in

Indonesia and the world in 2013, 2050 and 2100 seems likely to increase.[10,11] In 2013, there were 8.9% in Indonesia and 13.4% in the world, in 2050, there were 21.4% in Indonesia and 25.3% in the world, and in 2100, there were 41% in Indonesia and 35,1% in the world. Based on data from 2012, the proportion of elderly population in Indonesia is 7.59% which the Morbidity of Elderly from 2008 to 2012 tends to decrease.[12] In other words, the degree of health of the elderly increases. [13] Behind this success is a challenge, namely increasing the burden of dependents on the population of productive age to population of unproductive age.[14]

The results of the Basic Health Research of the Ministry of Health of the Republic of Indonesia in 2013 showed that there was an increase in the prevalence of stroke in Indonesia from 8.3 per mile (in 2007) to 12.1 per mile (in 2013) which was accompanied by an increase in cases of brain tumors, head trauma and brain infection.[10] Based on the results of a report from the Health Research and Development Agency, for the registration of causes of death in 15 regencies/ cities in 2011, the highest proportion of causes of death in the elderly group (aged 55-64 years and >65) were strokes and ischemic heart diseases.

From 1990-2016, among 195 countries, the Global Burden of Diseases, Injuries, and Risk Factors Study concluded that neurological disorders were the second leading cause of death after heart disease, with the main contributor being stroke (42.2%) and the highest cause of disability.[15]

The objective of this study was to find out the 5 most diseases of the elderly, clinical characteristics and outcomes of elderly patients treated at the Central Hospital of Sanglah. The significance of this study is to provide a description of the characteristics of elderly patients at the Central Hospital of Sanglah so that it will obtain basic data that can be used as a reference for scientific development in the Central Hospital of Sanglah Neurology. In addition, this research will create disease prevention activities in the field of neurology and improve the focus of care and supervision of elderly patients who are hospitalized so that it increases the outcome of patients and reduces the burden of dependents on the hospital itself.

METHODS

This is a retrospective study that uses no control by looking at the medical records of patients aged 60 years and over who visit the neurology clinic, who visit the Emergency Care Installation for neurological cases and who are hospitalized at the Central Hospital of Sanglah in the March to May 2019 period.

Before carrying out data collection, the researchers first completed the consent at the Central Hospital of Sanglah. Then, researchers visited the medical room to explain the objective of the research regarding the search for data on cervical injury patients from July to August 2019. Then, the study was conducted by recording the medical records needed and in accordance with the criteria sought in this study.

This study will present a complete picture of a phenomenon or social reality, by describing a number of variables relating to the research problem using retrospective data. This study is based on several uses of patient data variables, the main diagnosis of the patient, the patient's age, the sex of the patient, the cause of death of the patient.

The population in this study were patients aged >60 years who visited the Neurology Polyclinic of the Central Hospital of Sanglah who were treated in the inpatient room and who visited the Emergency Department of the Central Hospital of Sanglah from July to August 2019.

The sampling technique in this study was carried out using a total sampling technique by taking all members of the population as a research sample of 220 patients aged >60 years

Data processing techniques used in this study began with collecting the data used in research obtained from the reporting section of the Medical Records Installation. Then, tabulation was completed; i.e. data tables that had been collected from the results of study to compile the main tables of geriatric neurology patient characteristics. The third stage is the presentation of research data in the form of tables and graphs.

Inclusion criteria

Patients aged 60 years and over who visit the neurology clinic, who visit the Emergency Care Installation for neurological cases and who are hospitalized at the Central Hospital of Sanglah in the March to May 2019 Period.

Exclusion criteria

Patients with incomplete medical records. Medical record data used are age, sex, blood pressure and clinical diagnosis. In addition, outcomes are assessed based on living conditions or death when inpatients are discharged from the hospital. The data collected is processed using SPSS.

RESULTS

Among 220 patients, there are only 200 patients aged 60 years and over who can be assessed based on the completeness of the medical record data (Table 1).

The proportion consisted of 111 males (55.5%) and 89 females (44.5%). The 200 patients were divided into 16 diseases consisting of 1. ischemic stroke, 2. bleeding stroke, 3. brain tumor, 4. epilepsy, 5. head injury, 6.

parkinsonism, 7. non-specific low back pain, 8. meningoencephalitis, 9. headache, 10. dementia, 11. myelopathy, 12. Guillain barre syndrome, 13. myoclonic, 14. chorea, 15. vertigo, 16. Tetanus (Table 2). Table 2 shows that among 200 neurological cases at the Central Hospital of Sanglah, there were 16 cases of death (8%).

Table 1: Characteristics of research subjects.

Diseases	Total (n)	Percentage (%)	Sex		Mean Age
			Male (n)	Female (n)	
Ischemic Stroke	61	30.5	37	24	70.7
Bleeding Stroke	47	23.5	22	25	69.5
Brain Tumor	18	9	8	10	62.6
Epilepsy	14	7	7	7	76.9
Head Injury	11	5.5	9	2	70.2
Parkinson	10	5	6	4	71
Nonspecific lower back pain	8	4	5	3	71
Meningoencephalitis	6	3	4	2	74.8
Headache	6	3	3	3	69.7
Dementia	6	3	2	4	71.7
Myelopathy	5	2.5	2	3	66.8
Guillain Barre Syndrome	3	1.5	3	0	72
Myoclonus	2	1	1	1	61.5
Chorea	1	0.5	0	1	80
Vertigo	1	0.5	1	0	64
Tetanus	1	0.5	1	0	76
Total	200	100.0	111	89	

Table 2: Outcomes of elderly patients treated in hospital.

Diseases	Living n (%)	Dead n (%)	Total n (%)
Ischemic Stroke	53	8 (13.1%)	61
Bleeding Stroke	39	8 (17%)	47
Brain Tumor	18	0	18
Epilepsy	14	0	14
Head Injury	11	0	11
Parkinson	10	0	10
Nonspecific lower back pain	8	0	8
Meningoencephalitis	6	0	6
Headache	6	0	6
Dementia	6	0	6
Myelopathy	5	0	5
Guillain Barre Syndrome	3	0	3
Myoclonus	2	0	2
Chorea	1	0	1
Vertigo	1	0	1
Tetanus	1	0	1
Total	184 (92%)	16 (8%)	200 (100%)

DISCUSSION

The era of the Social Security Organizing Agency limited the number of elderly patients who visited the Central Hospital of Sanglah. During the study period, there were 220 patients of which 200 patients met the study criteria.

Among the 16-disease data presented in Table 2, the 5 most common neurological diseases suffered by the elderly are 1. ischemic stroke, 2. bleeding stroke, 3. brain tumor, 4. epilepsy, 5. head injury. This is consistent with the results of the 2013 Basic Health Research which

found that the prevalence of strokes, tumors, brain infections and head trauma is increasing.

It is in line with the 2009 Peter Appelros study of the epidemiology of stroke based on sex differences which explains that the incidence of stroke in male is higher than in female. In this case, this study proves that people with ischemic stroke, as the most common disease in the Central Hospital of Sanglah, are male (60.7%). This seems to be caused by genetic factors and the neuroprotective effects of estrogen. In addition, epidemiological studies find higher blood pressure in male than female. This finding was again proved in this study (Figure 1) that the average systolic blood pressure in male was 155 and in female was 140.
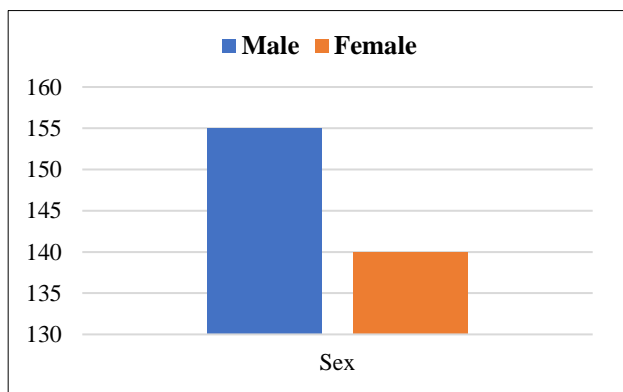

Figure 1: Average blood pressure in ischemic stroke.

Different things appear in studies of the causes of ischemic stroke in the elderly which according to Steven A. Lubitz, atrial fibrillation is the most frequent cause of stroke in the elderly. When the patient enters the age of 80%, it is said that the prevalence of suffering from atrial fibrillation and progressing to cardioembolic stroke reaches 9%. This research precisely found many ischemic strokes caused by thrombus. Based on the results of this study, examination of risk factors towards thrombus, education and regular control can certainly be improved in elderly patients who visit the Central Hospital of Sanglah (Figure 2).
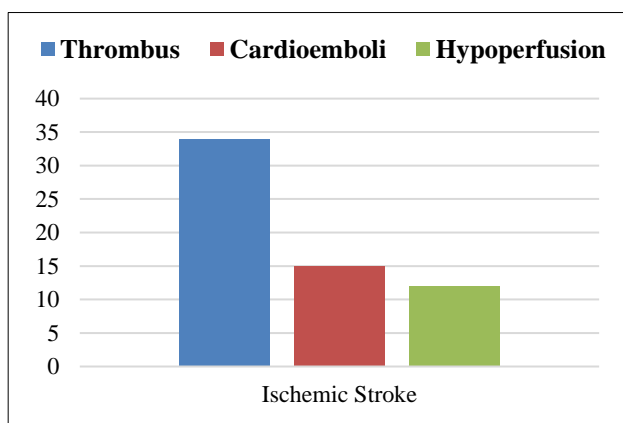

Figure 2: Causes of ischemic stroke.

The outcomes of neurology patients for 3 months. There were 8 ischemic stroke patients (13.1%) and 8 of all bleeding stroke patients (17%) died. Among 8 ischemic stroke patients, there were 5 people (62.5%) died with causes other than stroke as a basic disease. Meanwhile, among 8 hemorrhagic stroke patients, 2 (25%) died from causes other than bleeding stroke. These causes include sepsis and pulmonary infections which extend the period of treatment for stroke patients at the Central Hospital of Sanglah. It is expected that the focus of care and supervision of elderly neurology patients would be further enhanced to prevent side effects that would extend the patient's hospital stay which would automatically increase the burden on the hospital itself (Table 2).

CONCLUSION

Patients treated at the Central Hospital of Sanglah during the study period consisted of 111 males (55.5%) and 89 females (44.5%). There are 5 dominant neurological diseases that make elderly patients treated at the Central Hospital of Sanglah on an outpatient or inpatient basis which consists of: 1. ischemic stroke, 2. bleeding stroke, 3. brain tumor, 4. head injury, 5. epilepsy. It was found that the main cause of ischemic stroke was thrombus (64%) compared to cardio emboli or hypoperfusion. The number of deaths was 16 consisting of 8 people (13.1%) of ischemic strokes and 17% came from patients with bleeding strokes. However, among 16 cases died, 7 cases were caused by sepsis and pneumonia. It is expected that the focus of care and supervision of elderly neurology patients would be further enhanced to prevent side effects that would extend the patient's hospital stay which would automatically increase the burden on the hospital itself. Control, follow-up and stimulation of patients while outpatient also must be maintained.

The limitation of this study is the problem of incomplete medical records, especially in outpatients in the Polyclinic and Intensive Care Unit even though it does not significantly affect the results of the study.

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