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KNOWLEDGE ABOUT CEREBRAL STROKE PREVENTION AMONG HYPERTENSIVE PATIENTS AT NINH BINH PROVINCIAL GENERAL HOSPITAL IN 2023 AND ASSOCIATED FACTORS

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ABSTRACT

Objective: Describe the knowledge about cerebral stroke prevention among hypertensive patients at Ninh Binh Provincial General Hospital in 2023.

Methods: A cross-sectional descriptive study was conducted on 222 hypertensive patients managed at the Cardiovascular Clinic, Examination Department, Ninh Binh Provincial General Hospital from March 2023 to June 2023..

Results: Over 90% of patients knew the common symptoms and prevention of stroke. However, only 44.1% of patients reported that sudden memory loss was a sign of stroke. 69.4% of patients had good knowledge, while 30.6% had poor knowledge about stroke prevention. Patients with a higher education level had better knowledge about stroke prevention than those with a lower education level,

Conclusion: Stroke prevention in hypertensive patients was significant in improving health and quality of life, reducing the incidence of other chronic diseases, so it is necessary to strengthen health education for patients.

Keywords: Knowledge, stroke prevention, hypertension patients, Vietnam.

1. INTRODUCTION

Cerebral stroke (commonly known as stroke or cerebrovascular accident) has two primary clinical forms: acute ischemic stroke is characterized by sudden loss of blood circulation to an area of the brain due to blockage by a blood clot or embolism in a cerebral artery, leading to corresponding loss of neurological function. Ischemic stroke, also known as cerebral infarction (ICH), is more common than hemorrhagic stroke (CHS), which is caused by ruptured arteries in the brain [1]. In the United States, there are nearly 800,000 strokes each year, of which 82%–92% are ischemic strokes. It is one of the five leading causes of death and disability in adults, with an estimated annual cost exceeding $72 billion. The estimated medical and economic costs of stroke exceed $72 billion per year [2]. An estimated 90% of the global stroke burden stems from modifiable risk factors, of which 75% are related to behaviors such as smoking, unhealthy diet, and sedentary lifestyle. Hypertension is the most common risk factor, with approximately 64% of hypertensive patients having had a stroke, according to a pooled analysis of data from 30 studies. Effective control of behavioral and metabolic factors could prevent more than 75% of the stroke burden. Therefore, knowledge about stroke, especially among patients with high blood pressure, will be an essential key in stroke prevention activities [3]. Studies show that knowledge about stroke prevention among people and people with high blood pressure is still low, and there are differences between regions. According to Tibebu NS (2020), only 24.9% of people with high blood pressure have good knowledge about stroke prevention [4]. A study conducted in India on hypertensive patients about stroke prevention knowledge showed that 70% of hypertensive patients had inadequate knowledge, and 30% had average knowledge [5]. Another study conducted in Nigeria12 showed that 90.8% of hypertensive patients had good knowledge of stroke pre-

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vention measures [6]. The Cardiovascular Clinic, Examination Department, Ninh Binh General Hospital is the place to manage about 600 patients with hypertension for periodic check-ups. However, there has not been much research on the current status of stroke prevention knowledge of patients with hypertension. Therefore, this study is to *describe the knowledge of stroke prevention among hypertensive patients at Ninh Binh Provincial General Hospital*.

2. METHODS

2.1. Study population, time, and settings

2.1.1. Time and settings

The study was conducted from March 2023 to June 2023 at the Cardiovascular Clinic, Ninh Binh Provincial General Hospital.

2.1.2. Inclusion criteria:

- The patient was diagnosed with hypertension and was managed at the Cardiovascular Clinic, Examination Department, Ninh Binh General Hospital.

- The patient agreed to participate in the study.

- The patient was able to perceive and answer the survey

2.2. Design

2.2.1. Study design: Cross-sectional study.

2.2.2. Sampling and sample size:

- We calculated the sample size using the following formula for a population proportion with specified absolute precision:

$$n = Z^2_{1-\alpha/2} \frac{p(1-p)}{d^2}$$

We used a 95% confidence interval (CI) ($Z_{1-\alpha/2} = 1.96$) with an absolute precision d=0.06. We chose p = 0,024 following the result from the study of Tibebu NS (2020) conducted at Debre Tabor General Hospital (rate of hypertensive patients with good knowledge about stroke prevention). Following the above formula, a minimum sample size was 200. A total of 222 participants were involved in this study.

- Sampling method: Convenient sampling was applied by taking all patients who met the sampling criteria until the sample size was sufficient.

2.2.3. Data collection

- Data collection method: Patients answered directly on the survey form.

- Survey time: After the patient completed the medical examination procedure and was waiting for the results, or the doctor prescribed and consulted.

- Survey duration: 30 minutes/patient.

- Data collection tool: The survey form was developed based on the research of author Tibebu NS (2020) [4] and edited to suit the research subjects and locations

The data collection toolkit has a total of 52 questions and is divided into two parts:

- Part I: General information about the research subject includes 15 questions from question 1 to question 15 about name, gender, age, religion, place of residence, occupation, education level, source of educational information...

- Part II: Knowledge about stroke is divided into three areas:

+ Knowledge about risk factors for stroke includes 14 questions from A1 to A14.

+ Knowledge about the signs of stroke consists of 10 questions from questions B1 to B10.

+ Knowledge about stroke prevention consists of 13 questions from questions C1-C13.

2.3. Statistical method

The data analyses were carried out using SPSS 20.0. Descriptive analyses include percentages and mean values. Appropriate statistical tests are applied depending on the objectives and types of research variables.

2.4. Ethical issues

Ethical issues in the study were approved by the Scientific Council and the Ethics Council of Nam Dinh University of Nursing. The subjects participating in the study were informed of the purpose, obligations, and rights when participating in the study. The subjects voluntarily signed a commitment to participate.

3. RESULTS

Table 1. Demographic characteristics of participants(n=222)

Characteristics	Quantity	%
Sex		
Male	124	55.9
Female	98	44.1

Characteristics	Quantity	%
Age		
< 60 age	30	13.5
≥ 60 age	192	86.5
Living place		
Urban areas	124	55.9
Rural areas	98	44.1
Occupation		
Manual work	74	33.3
Intellectual work	26	11.7
Other	122	55
Education		
Secondary school or lower degree	118	53.2
High school or higher level	104	46.9
BMI		
Underweight	18	8.1
Normal	122	55
Obese	82	36.9

Table 1 shows that the majority of the patients were male, accounting for 55.9%, and 98 were female, accounting for 44.1%. The majority of the study subjects were aged 60 and over, accounting for 86.5%. In the study, 55.9% of the patients lived in urban areas, and 53.2% of the patients had a high school degree or higher. The proportion of patients with an average BMI was 55%. The remaining patients with BMIs ranging from underweight to obese accounted for 8.1% and 36.9%, respectively.

Table 2. Good knowledge of stroke symptoms (n=222)

No	Knowledge question	Frequency	Rate (%)
B1	Sudden and severe headache	204	92.8
B2	Sudden dizziness or loss of balance, or coordination	206	92.8
B3	Sudden memory loss	98	44.1
B4	Sudden loss or loss of vision	170	76.6
B5	Sudden difficulty speaking	152	68.5
B6	Difficulty swallowing	112	50.5
B7	Sudden loss or decrease in sensation on one side of the body	176	79.3
B8	Sudden loss or decrease in sensation in the whole body	192	86.5
B9	Sudden weakness or paralysis on one side of the body	182	82.0
B10	Sudden weakness or paralysis of the whole body	194	87.4

Table 2 shows that the majority of patients had correct knowledge about recognizing signs of stroke, of which more than 92.8% of patients knew that sudden, severe headache, sudden dizziness or loss of balance, or loss of coordination are signs of stroke. Other signs of stroke: Sudden weakness or paralysis of the whole body (87.4%), Sudden loss or reduction of sensation in the entire body (86.5%). However, only 44.1% of patients thought that sudden memory loss was a sign of stroke.

Table 3. Good knowledge on stroke prevention(n=222)

No	Knowledge question	Frequency	Rate (%)
C1	Control blood pressure	216	97.3
C2	Control blood sugar	172	77.5
C3	Control cardiovascular diseases	188	84.7
C4	Re-examine according to the doctor's appointment	214	96.4
C5	Limit foods high in fat (high in oil)	176	79.3
C6	Increase fruit and vegetable intake	206	92.8
C7	Follow a low-salt diet for people with high blood pressure	204	91.9
C8	Limit alcohol consumption	186	83.8
C9	Quit smoking	200	90.1
C10	Participate in regular physical activity, exercise at least 30 minutes a day	204	91.9

No	Knowledge question	Frequency	Rate (%)
C11	Lose weight if overweight or obese	174	78.4
C12	For women, avoid using birth control pills	120	54.1
C13	Regular blood donation does not prevent stroke	92	41.4

Table 3 shows that a majority of patients have the correct knowledge about stroke prevention, of which more than 90% of patients know that they need to control their blood pressure, return for check-ups according to their doctor's appointment, have a low-salt diet, eat more fruits and vegetables, limit alcohol consumption and quit smoking to prevent stroke. However, only 41.4% of patients think that regular blood donation is not a measure to help prevent stroke.

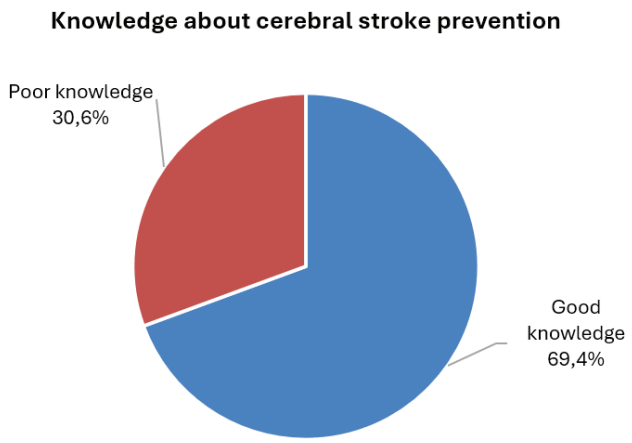

Figure 1. Knowledge about cerebral stroke prevention (n=222)

Figure 1 shows that 69.4% of patients classified their knowledge as satisfactory, and 30.6% of patients classified their knowledge as unsatisfactory

Table 4. Associated factors related to knowledge on cerebral stroke prevention (n=222)

Features	Quantity	Average score	p
Sex			
Male	124	20.08 ± 3.82	1.006
Female	98	20.58 ± 3.92	
Age			
< 60 age	30	21.06 ± 4.2	0.9
≥ 60 age	96	20.24 ± 1.91	
Living place			
Urban areas	124	20.54 ± 3.68	1.134
Rural areas	98	20.12 ± 4.12	
Education			
Secondary school or lower degree	118	19.46 ± 3.92	0.016
High school or higher level	104	21.38 ± 3.6	
Duration of having hypertension			
< 5 years	42	20.66 ± 2.18	1.786
5- 10 years	102	20.20 ± 3.78	
> 10 years	78	20.42 ± 3.82	
Seeking information about hypertension			
Yes	124	20.94 ± 3.86	0.156
No	98	19.64 ± 3.6	
Source of information on hypertension			
Health providers	60	21.74 ± 3.22	0.568
Relatives/ Friends	26	19,7 ± 4,38	
Mass media	32	20,88 ± 2,50	

Table 4 showed that there was a difference in the average knowledge score of patients with educational level, the difference was statistically significant with p = 0.016 < 0.05. Specifically, patients with a higher academic level had better knowledge about cerebral stroke prevention than those with a lower educational level. The study also showed that the knowledge score about cerebral stroke prevention of women, young patients, people living in the city, and patients who learned about cerebral stroke, received information from medical staff, was higher than the remaining group. However, the difference was not statistically significant with p> 0.05.

4. DISCUSSION

Our study was conducted on 222 hypertensive patients managed at the Cardiology Clinic, Department of Examination, Nam Dinh General Hospital. Of these, 124 patients were male, accounting for 55.9%, and 98 patients were female, accounting for 44.1%. Our results are similar to the results of Pham Thi Anh Nguyet (2019) [7], Dinh Thi Thu Huyen (2023) [8]. The research results all show that the rate of stroke in men is higher than that

in women. The majority of patients participating in the survey were over 60 years old, accounting for 86.5%. This result is higher than the study by Nguyen Van Trieu (2023) [9]. Stroke is a sudden, hazardous medical emergency. The damaged brain area can recover if detected and treated promptly. However, if blood is not reperfused early, brain tissue will quickly become necrotic. Therefore, early recognition of stroke warning signs plays a key role in improving prognosis and minimizing sequelae for patients. The results of our study show that the majority of patients have correct knowledge about recognizing stroke signs, of which more than 92.8% of patients know that sudden, severe headache, sudden dizziness or loss of balance, or loss of coordination are signs of stroke. Other signs of stroke: Sudden weakness or paralysis of the whole body (87.4%), Sudden loss or reduction of sensation in the entire body (86.5%). However, only 44.1% of patients believe that sudden memory loss is a sign of stroke. This result is higher than the results of previous studies, Pham Thi Anh Nguyet (2019) [7] and Nguyen Thi Thuy Ha (2021) [10]. Our study shows that most patients have correct knowledge about stroke prevention, of which more than 90% of patients know that they need to control their blood pressure, follow their doctor's appointment, have a low-salt diet, eat more fruits and vegetables, limit alcohol consumption, and quit smoking to prevent stroke. However, only 41.4% of patients think that regular blood donation is not a measure to help prevent stroke. This result is higher than the results of studies of Pham Thi Anh Nguyet (2019) [7] and Nguyen Thi Thuy Ha (2021) [10] with the number of people who think that not having high blood pressure is a way to prevent stroke accounting for the highest rate (35.9%), followed by not drinking alcohol (24.8%), eating lots of vegetables and fruits (15.8%); other measures to prevent stroke such as quitting smoking, eating less sugar, losing weight, eating less fat, eating less salt, not staying up late, working within one's capacity... are less known, accounting for a rate of no more than 10%. A study at Debre Tabor General Hospital of Tibebu NS (2020) also showed that ensuring appropriate treatment of hypertension was the most commonly identified stroke prevention method, identified by 391 respondents, with other measures identified as preventive methods by patients accounting for less than 50% [4]. In addition, the study showed that there was a difference in the average score of knowledge of patients with educational level, the difference was statistically significant with $p = 0.016 < 0.05$. Specifically, patients with a high academic level had a better understanding of stroke prevention than those with a low educational level. The results in this study were similar to the study results of M. Jacqueline (2006). In general, the knowledge about stroke prevention among most patients was still at low and average levels.

In our study, the majority of hypertensive patients were of advanced age, so their ability to perceive, absorb, and remember knowledge was limited. In addition, another influencing factor is that the current medical human resources are still lacking compared to the needs of health care and education in the community. This is not only a shortcoming in the field of cardiology but also a common challenge for the health sector in Vietnam, as well as in the world. This reality means that the medical staff, who are the most specialized and knowledgeable, often do not have enough time to advise, explain, and guide patients thoroughly and in detail.

5. CONCLUSION

Stroke prevention in hypertensive patients is essential in promoting health and improving quality of life, reducing the incidence of other chronic diseases. Therefore, appropriate interventions are needed for patients to enhance their knowledge and practice of stroke prevention.

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