

## Recognition of stroke signs and symptoms among stroke victims and their families

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### Abstract

Having a stroke has a serious negative impact on patients and their families. The most negative potential impact is disability which could be reduced if the patients receive appropriate treatment within 4.5 hours. This study aimed to explore stroke victims and their families regarding their awareness of stroke signs and symptoms as well as their immediate management. The sample consisted of 23 stroke victims being admitted to a hospital. Among the 23 stroke victim only 14 of them could communicate well. The other 9 patients could not so the information was obtained from their relatives instead. The research instruments included a questionnaire and instructional interview. These aimed to ascertain the level recognition of stroke signs and symptoms, and immediate management from the interviewee. Data was collected by instructional as well as in-depth interview and observation.

The results revealed that most of informants recognized the stroke signs and symptoms that the patient had had. These included 1) Sudden weakness of arm or leg on one side of the body, including uneven smile or numbness of face; 2) sudden trouble speaking or understanding including, slurred speech; 3) sudden trouble seeing in one or both eyes, including blurred or double vision; 4) sudden dizziness, vertigo, unable to walk a straight line, loss of balanced or coordination and 5) severe headache with unknown cause and vomiting or passing out. Among the 23 stroke victims, 14 arrived at the hospital within 3.5 hours. Of those having arrived at the hospital within 3.5 hour, 8 of them recognized all of the stroke signs and symptoms. Nine stroke victims did not come to a hospital immediately even though 6 of them recognized all of stroke signs and symptoms. These results suggested that most of the patient and families were aware of stroke signs and symptoms. Further studies should therefore investigate other factors associated with the recognition of stroke and their subsequent rapid travel to the hospital.

**Keywords:** stroke signs and symptoms, stroke victims

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### 1. Introduction

A stroke is sometimes known as a “brain attack”. It occurs when the brain is damaged due to a disruption of blood supply to a certain part of the brain. Many factors associated with stroke but the most common risk factors are hypertension, high cholesterol, diabetes mellitus, heart disease, and clotting disorders. A stroke can be classified as one of two types. These are ischemic stroke and hemorrhagic stroke [1, 2]. This study focused on ischemic strokes. The common signs and symptoms of stroke include:

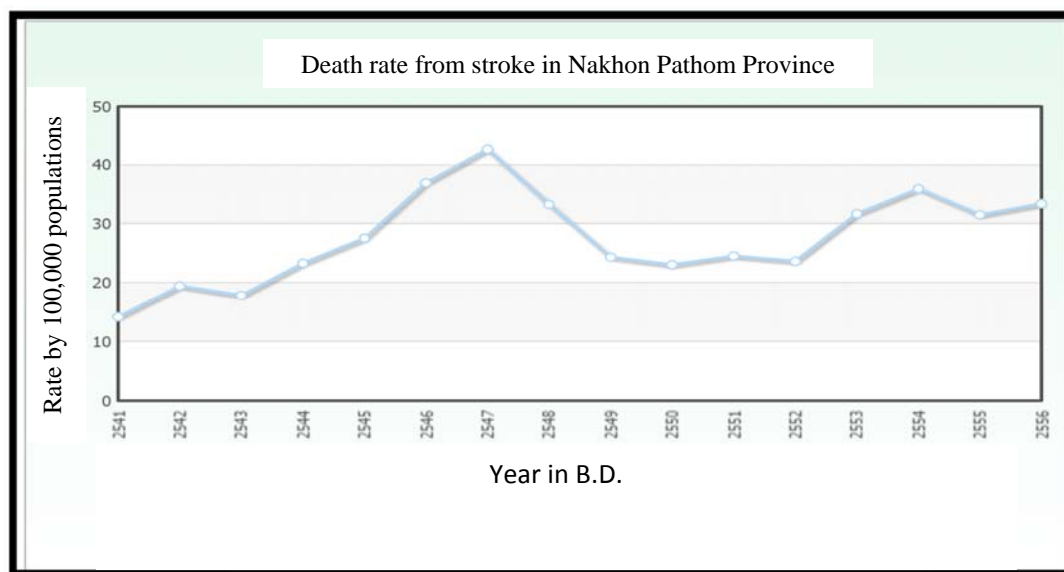
- 1) Sudden weakness of arm or leg on one side of the body, uneven smile or numbness of face.
- 2) Sudden trouble speaking or understanding, slurred speech.
- 3) Sudden trouble seeing in one or both eyes, homonymous hemianopia, blurred or double vision.

- 4) Sudden dizziness, vertigo, unable to walk a straight line, loss of balanced or coordination.

- 5) Severe headache with unknown cause and vomiting or passing out.

A patient having a stroke needs immediate diagnosis such as the use of a stroke severity rating scale (NIHSS), a computer tomography (CT) scan or a magnetic resonance imaging (MRI) (for looking at the type, the location and size of stroke), blood tests, electrocardiogram (ECG), frequent neurological examination as well as other tests such as ultrasound and echocardiogram. At this time general supportive care such as airway management, breathing assistance, blood oxygenation, blood pressure monitoring and temperature monitoring to prepare the patient to receive treatment in the form of an intravenous alteplase [3].

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**Figure 1** Death rate from stroke in 2013 in Nakhon Pathom Province  
(Retrieved from <http://www.hiso.or.th>)

The immediate medical treatment for an ischemic stroke is the use of recombinant tissue plasminogen activator (r-tPA). It can dissolve the clot and improves blood flow to the part of the brain affected by the stroke. This treatment needs to be used within 4.5 hours to reduce permanent damage or disability and to give the chance of a full recovery [4].

A survey from the Ministry of Public Health, Thailand estimated that there were 150,000 new stroke patients each year and it continues to increase year by year. Strokes are a major cause of death of Thai population, following cancer, infectious diseases, accidents and heart disease [5]. From the literature review, the accessibility to timely treatment and continuing care of stroke patients in Thailand is worrying [6].

Nakhon Pathom Province is located in semi-urban and semi-rural context. Some people live their lives at risk of stroke due to eating behaviors such as consuming food high in sugar, fat and salt. There are patients with chronic conditions, such as hypertension or diabetes who are at risk of stroke. In 2013, the rate of deaths from strokes in Thailand was 33.4 per 100,000 people, and is currently increasing (Figure 1). In 2012, the prevalence of strokes was 688 people which is a rate of 79.05 per 100,000 [7, 8].

A literature review, showed that there are many contributing factors to delays in stroke victim's seeking treatment. These are, a lack of knowledge regarding stroke signs and symptoms, and how to manage patients when they have a stroke [9-11]. This study focuses on how well stroke victims and their families recognize the

signs and symptoms of someone experiencing a stroke and how to care for the patient immediately following the stroke [12, 13].

## 2. Materials and Methods

This study is descriptive research in which both quantitative and qualitative methodologies were applied. It is a part of the project to develop accessibility to treatment in a timely manner and to enhance continuity in the caring for stroke patients.

The research sample consisted of 23 stroke victims who were identified after being admitted to a hospital. Among the 23 stroke victims only 14 of them could communicate well while the other 9 patients could not. In these cases information was obtained from their relatives. The research was conducted from October 2015 to April 2016.

The research instruments that were used were: 1) a knowledge assessment questionnaire about stroke warning symptoms and 2) an in-depth interview regarding the system and treatment of stroke patients. The instruments were tested for reliability with Kuder-Richardson formula in sub-districts of Nakhon Pathom. The reliability value was found to be 0.87. In addition to this three experts in nursing, research, and strokes were asked to review and comment on the research instruments.

Quantitative data was analyzed to give frequency of response and the percentage of participants that gave each response.

**Table 1** General information and health records of the patients with stroke (n=23)

General information and health records	Frequency	Percentage (%)
Age (years old)		
40 - 50	4	17.39
51- 60	9	39.13
61 – 70	7	30.43
71- 80	2	8.70
over 81	1	4.35
Gender		
Male	17	73.91
Female	6	26.09
Religion		
Buddhist	23	100.00
Occupation		
Farmer	2	8.70
Retail worker	7	30.43
Housewife/Househusband	4	17.40
Laborer	3	13.04
Retired person	5	21.73
Teacher	1	4.35
Officer	1	4.35
Marital Status		
Single	1	4.35
Widowed	3	13.04
Separated	1	4.35
Married	18	78.26
Monthly Income		
Adequate	16	69.57
Inadequate	7	30.43
Education		
No education	1	4.35
Primary Education	15	65.20
Lower Secondary Education	2	8.70
High School Education/Vocational Certificate	2	8.70
Diploma/High Vocational Certificate	2	8.70
Higher than Bachelor's Degree	1	4.35
Alcohol Drinking Behavior		
Drinks Alcohol	8	34.80
Never Drinks Alcohol	15	65.20
Smoking Behavior		
Smoking	6	26.09
Never Smokes	17	73.91
Underlying Diseases		
Have Underlying Disease	14	60.87
No Underlying Disease	9	39.13
Has Annual Physical Examination		
Yes	14	60.87
No	9	39.13
Medical Insurance		
Gold Card Scheme	16	69.56
Social Security Scheme	2	8.70
Private Health Insurance (Company Employment)	2	8.70
Civil Servant Benefits Scheme	3	13.04

General information and health records	Frequency	Percentage (%)
Transport to Hospital		
Private Vehicle/Taxi	22	95.65
Emergency Medical Service 1669	1	4.35
Exercise		
Regular Exercise	9	39.13
Never Exercise	14	60.87
Medical Care Behavior for Minor Illness		
Buy Medicines from Pharmacy	11	47.82
Goes to private clinics	2	8.70
Goes to a Sub-District Health Promoting Hospital	5	21.73
Goes to a general hospital	4	17.40
Never gets minor illness	1	4.35

**Table 2** Knowledge assessment about stroke warning signs and symptoms (n=23)

Knowledge about stroke warning symptoms	Frequency	Percentage %
1. Sudden weakness of arm or leg especially on one side of the body, uneven smile or numbness of face		
Yes	22	95.65
No	1	4.35
2. Sudden trouble speaking or understanding, slurred speech		
Yes	23	100.00
3. Sudden trouble seeing in one or both eyes, homonymous hemianopia, blurred or double vision		
Yes	19	82.60
No	4	17.40
4. Sudden dizziness, vertigo, unable to walk a straight line, loss of balance or coordination		
Yes	15	65.22
No	8	34.78
5. Severe headache with unknown cause and vomiting or passing out		
Yes	21	91.30
No	2	8.70

### 3. Results

The research results are divided into 3 parts as follows:

#### Part 1: General information and health records.

There were 23 stroke victims, 14 patients could communicate well and the other 9 patients could not. In these cases the information was obtained from their relatives. The patients were between 44 and 84 years old. The majority were, 73.91%, males. All, 100%, were Buddhists. 30.43% worked as sellers and 21.73% were retired. 78.26% were married and 65.20 had completed primary education. Also, 34.8% consumed alcohol and 26.09% were smokers. More than half, 60.87%, had underlying diseases. This can be seen in the following table: (Table 1)

#### Part 2 Knowledge assessment about stroke warning signs and symptoms

Most of the patients and relatives were found to have

knowledge about the 5 stroke warning signs and symptoms. They described stroke warning symptoms, in descending order, as follows: trouble speaking or understanding, slurred speech (100%); weakness of arm or leg especially on one side of the body, uneven smile or numbness of face (95.65%); severe headache with unknown cause with vomiting or passing out (91.30%); trouble seeing in one or both eyes, homonymous hemianopia, blurred or double vision (82.60%); and dizziness, vertigo, unable to walk a straight, loss of balance or coordination (65.22%), The details were presented as shown in Table 2.

#### Part 3 Recognized and accessibility to timely treatment of stroke patients

According to in-depth interviews, among the 23 stroke patients, 14 stroke patients had arrived the hospital within 4.5 hours, and 8 of them recognized all

**Table 3** Recognition of stroke symptoms and access to timely treatment (n=23)

Access to timely treatment of stroke patients	Frequency	Percentage %
<b>Time before Arrival at Hospital</b>		
Within 4.5 hours	14	60.87
More than 4.5 hours	9	39.13
<b>Recognized all stroke warning signs and symptoms</b>		
Within 4.5 hours	13	57.14
More than 4.5 hours	10	42.86
<b>Recognized some stroke warning signs and symptoms</b>		
Within 4.5 hours	15	66.67
More than 4.5 hours	8	33.33

stroke warning signs and symptoms. Nine stroke patients did not come to a hospital immediately, even though 6 of them recognized all stroke warning signs and symptoms, These results are shown in Table 3.

Among the 9 stroke patients who recognized some stroke warning signs and symptoms but did not immediately travel to hospital some attempted to self-medicate. They did this in the following ways 1) took a rest 2) took medicine 3) had a massage and 4) went to sub-district health promoting hospital. Most of the stroke patients studied did not know about basic life support before transferring to the hospital. More than 80% of them knew about the 1669 emergency service but they were not sure about the service in terms of timely arrival at the hospital, area route knowledge, or hospital transfer.

Knowledge of the warning symptoms of strokes are considered a key factor for access to timely treatment. The knowledge and recognition of stroke symptoms and patient transport for early treatment can reduce patient mortality. This study found that, although most people know about the 5 warning signs of stroke, in accordance with the campaigns of the Ministry of Public health, they do not consider it to be an emergency which necessitates immediate hospital treatment. Three of the key symptoms of a stroke were missed by some of the respondents. These were severe headache with unknown cause and vomiting or passing out; dizziness, vertigo, gait disturbances, loss of balance or coordination; and trouble seeing in one or both eyes, homonymous hemianopia, blurred or double vision. Because of this the patient's caregivers or family members did not take them to the hospital immediately.

#### 4. Discussion

Sombat Muengtawepongsa, Warunee Hungkok, and Teeranut Harnirattisai (2014) studied the factors contribute to delays in the arrival of patients with acute ischemic stroke to hospital. The results show that the mode of transportation and knowledge of stroke

warning signs are not significantly different between the group of respondents that arrives to hospital on-time group and those who delay hospital admission [14].

This result is in accordance with the study of Pornpatr Dharmasaroja and Sombat Muengtawepongsa (2014). In Thailand the emergency assistance 1669 is the service for informing primary symptoms and providing patient transport to hospital [11].

Additionally, while waiting for medical help and transport to hospital, patients do not get basic life support and first aid for stroke due to lack of knowledge. Regarding the study of Jatupong Panwilai, Puping Akkawipat and Saisamon Borisut (2014), it explained guidelines for acute stroke first aid following R-C-A-B (R = Response, C = Circulation, A = Airway, and B = Breathing). [4].

The limitations of our study include having the small sample size. The survey was carried out for patients with who could not communicate directly with the researchers by their relatives.

#### 5. Conclusions

Stroke patients and their relatives or care givers need to recognize stroke signs and symptoms in order for them to be transported for treatment in a timely manner. It was found that access to timely treatment via emergency call or 1669 is still not effective due to a perceived lack of knowledge and experience about roads in the area and a lack of confidence in the emergency assistance system. When strokes are experienced caregivers, relatives and family members give priority to transferring patients to the hospital rather than calling the 1669 service.

Access to timely treatment of stroke patients in the community indicates should be a key part of the strategy for reducing deaths and long term disabilities that result from strokes.. Health promotion strategies can be used to improve community recognition of early symptoms of strokes, to establish stroke alert system to people in the community and to promote use of the 1669

emergency service. Local, regional, and government organizations need to create collaborative networks to develop medical access.

### 6. Research Application

1. The results from this research suggest that health personnel in hospitals and health volunteers should encourage communities to respond more quickly when they recognize symptoms of strokes. They should be encouraged to have more confidence in the 1669 emergency medical service system.

2. Helping systems and clinical nursing practice guidelines should be developed for caring for patients with early warning signs and symptoms of strokes in their communities.

### 7. Further study Recommendation

1. The ability of at risk groups in Nakhon Pathom Province to recognise the warning signs of strokes and their knowledge of the emergency medical service should be studied.

2. The factors relating to hospitalization of risk groups in Nakhon Pathom Province due to strokes should be further explored.

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