

**THE EFFECTS OF NURSING INTERVENTION
ON SAFE SWALLOWING AMONG STROKE PATIENTS
WITH DYSPHAGIA UTILIZING
A CLINICAL NURSING PRACTICE GUIDELINE**

The seal of Mahidol University is a large, circular emblem. It features a central blue circle containing a golden Thai stupa (chedi) with intricate carvings. This central circle is surrounded by a wider yellow ring. The Thai text 'มหาวิทยาลัยมหิดล' (Mahavithayalai Mahidol) is written in a circular path around the central blue circle. Four golden floral motifs are positioned at the top, bottom, left, and right of the central blue circle, separating the Thai text from the outer yellow ring.

THIPSUDA CHAMNANSRIPETCH

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Thematic paper
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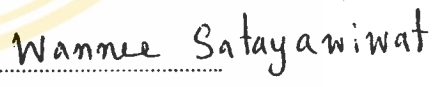
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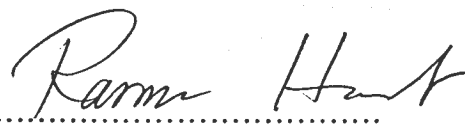

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THE EFFECTS OF NURSING INTERVENTION ON SAFE SWALLOWING
AMONG STROKE PATIENTS WITH DYSPHAGIA UTILIZING A CLINICAL
NURSING PRACTICE GUIDELINE.

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ABSTRACT

The purpose of this quasi-experimental, one-group pre and post-test design was to study the effects of nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia. The samples were 10 stroke patients with dysphagia. They were admitted in Neuromedical wards at Prasat Neurological Institute. The implementation of nursing intervention was conducted by the investigator. Data were collected from March to April, 2003. Statistical analysis used was Wilcoxon Signed-Ranks Test to measure the difference of the swallowing difficulty before and after implementation of the nursing intervention.

The results revealed that after the stroke patients with dysphagia received the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia, the patient ability to swallow safely increased. The swallowing difficulty scores significantly decreased at $P\text{-value} = 0.004$. The patients had no aspiration and leakage of food or liquid from the mouth while swallowing, and had no coughing, choking or breathlessness, wet or gurgly voice, sticking of food in throat and pocketing of food after swallowing.

These findings suggest that the clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia should be implemented in nursing practice among the stroke units. Developing and implementing strategies to integrate and maintain change in practice is also recommended.

KEY WORDS : DYSPHAGIA/ SWALLOWING / STROKE/ NURSING
INTERVENTION/ CLINICAL NURSING PRACTICE
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ผลของการพยาบาลตามแนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก (THE EFFECTS OF NURSING INTERVENTION ON SAFE SWALLOWING AMONG STROKE PATIENTS WITH DYSPHAGIA UTILIZING A CLINICAL NURSING PRACTICE GUIDELINE)

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บทคัดย่อ

การศึกษานี้เป็นการวิจัยกึ่งทดลอง เพื่อศึกษาผลของการพยาบาลตามแนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก กลุ่มตัวอย่างเป็นผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบากที่รับไว้ในหอผู้ป่วยอายุรกรรมประสาท สถาบันประสาทวิทยา จำนวน 10 คน ผู้ศึกษาดำเนินการเก็บข้อมูลด้วยตนเอง ในระหว่างเดือนมีนาคมถึงเมษายน พ.ศ. 2546 วิเคราะห์ข้อมูลความแตกต่างของการกลืนลำบากก่อนและหลังให้การพยาบาลตามแนวปฏิบัติการพยาบาลโดยใช้สถิติวิลค็อกสันไซน์เรงก์เทสต์

ผลการศึกษาพบว่าผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก หลังได้รับการพยาบาลตามแนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก มีการกลืนได้อย่างปลอดภัย โดยมีคะแนนการกลืนลำบากลดลงอย่างมีนัยสำคัญทางสถิติ ($P\text{-value} = 0.004$) กล่าวคือ ขณะกลืนผู้ป่วยไม่มีอาการสำลัก ไม่มีน้ำหรืออาหารไหลออกจากปาก และ หลังกลืน ไม่มีอาการไอทันที ไม่มีอาการจุกแน่น หายใจลำบาก ไม่มีเสียงน้ำในคอ ไม่รู้สึกรับอาหารติดอยู่ในคอ และไม่มีเศษอาหารค้างในกระพุ้งแก้ม

จากการศึกษานี้มีข้อเสนอแนะดังนี้ ควรนำแนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบากเข้าเป็นส่วนหนึ่งในการปฏิบัติการพยาบาลสำหรับผู้ป่วยที่มีการกลืนลำบากในหน่วยงานที่รับผิดชอบในการดูแลผู้ป่วยโรคหลอดเลือดสมอง และควรมีวิธีการส่งเสริมให้การปฏิบัติดังกล่าวมีความยั่งยืนในหน่วยงาน

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CHAPTER I

INTRODUCTION

Background and Significance of the Study

Stroke is a syndrome of cerebrovascular disorder. It is the most common cause of illness among neurological patients (Puangwarin, N. 2002). The pathology of stroke leads to the occlusion or rupture of the cerebral vascular, which makes the brain tissue become atrophy or ischemia so that it can not normally function. Stroke affects physical functions. Patients with stroke suffer various disorders, such as disorder of cognition or intelligence, problems in speech and communication, disorders of movement or muscle weakness, dysphagia or aphagia, paralysis of the trunk and extremities, and deficiency in sensation. Although these problems are not avoidable, their sequelae can be prevented. With proper rehabilitation regimens, the complications are therefore diminished and the patients' quality of life is eventually improved (Black & Matassarini-Jacobs, 1993).

Dysphagia or swallowing difficulty is one of the important complications that may occur from a disorder of the brain such as brain injury, Parkinson's disease, dementia and stroke. Symptoms of dysphagia include weakness, difficulty in movement or coordination of the swallowing muscles. The prevalence of dysphagia following stroke has been reported as ranging from 28% to 65% (Park & O'Neill, 1994).

Dysphagia following cerebrovascular disease derives from the damage of the swallowing center or motor nuclei of cranial nerves which control the striated muscles of the neck and upper esophageal sphincter, due to the disorder of vertebrobasilar and postero inferior cerebellar arteries from severe damage to the bilateral brainstem. Furthermore, dysphagia may be found in stroke patients with bilateral hemisphere lesion due to the deficiency in conduct impulse from the cerebral cortex to the

swallowing center (Unnapiruk, L. et al., 2000) resulting in weakness of the swallowing and mastication muscles. Patients with hemiplegia whose swallowing and mastication muscles are weak always suffer with facial palsy and loss of swallowing reflex. This group of patients experiences difficulty in sucking, chewing and swallowing. Instead of chewing, patients hold the food in their mouth and while swallowing the risk for aspiration occurs (Eibrahim, F. 1999), followed by complications such as an obstruction of the respiratory tract and aspirated pneumonia. These complications lead to malnutrition, increased hospital admission as well as an increased re-admission rate (Smithard, 1996), increased in medical expense and mortality rate. The evidence as stated above shows that dysphagia creates an impact on the physical, emotional, social, and economic status of the patient, and also an impact on the family and caregivers.

Although swallowing difficulty is a significant health problem, it still receives little attention in Thailand. There are very small numbers of research studies regarding swallowing difficulty in Thailand. Patients with dysphagia, do not receive accurate nursing intervention because there is no standard protocol for managing this problem. Additionally, nurses who care for patients with dysphagia still lack of experience and skill in accurate assessment and management of the patients.

It is important for nurses, who have a significant role in caring for the patients, to increase their understanding of post stroke dysphagia because nurses are often the first to observe the signs and symptoms of dysphagia. An increased awareness of dysphagia and its complications would help prepare nurses to assess high-risk patients, to make prompt diagnosis, to provide patients with accurate nursing intervention, and to educate patients and their family members. Prompt assessment and intervention are required and may decrease the patients' problems (Travers, 1999). Nurses who have these abilities can help the patients with dysphagia in numerous ways such as swallowing training, positioning, diet modification, provide a suitable environment and oral hygiene care (Jacobson, et al., 1997; Killen, 1996).

According to the investigator's own experiences, acute stroke patients who have problems in mastication and swallowing, and are admitted to hospital do not receive appropriate assessment and nursing intervention. They do not know how to perform safe swallowing, so that they are at risk for aspirated liquids and foods.

Aspiration food and liquid was commonly found among 40-70% of stroke patients with dysphagia which may lead to complications such as obstruction of the airway, aspiration pneumonia (Uttawong, T. 1998: 4). Pneumonia is present in up to 19% of acute stroke patients with dysphagia (Odderson, et al., 1995: 1130), and can lead to prolonged hospitalization, increased in medical expense and eventually cause of death. An accurate way to solve this problem is essential. Therefore, the investigator was interested in developing the clinical nursing practice guideline for stroke patients with dysphagia by integrating knowledge from relevant clinical research. The clinical nursing practice guideline consists of the initial swallowing assessment, swallowing training, swallowing muscles exercise, positioning, diet modification and oral hygiene care before and after meals. It was expected that this clinical nursing practice guideline could enhance swallowing among the stroke patients with dysphagia. Moreover, by utilizing this research-based practice guideline, positive nursing outcomes such as decreased medical expense and decreased length of hospital stay are also expected. The health care institutions may eventually receive high respect from clients.

Purpose of the Study

To study the effects of the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among the stroke patients with dysphagia.

Hypothesis of the Study

After receiving the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing, the patients' swallowing difficulty score will decrease.

Conceptual Framework

Stroke in patients is mostly caused from the pathology of the cerebral vascular, which is one of the occlusions from cerebral thrombosis or cerebral embolism, or from cerebral hemorrhage or subarachnoid hemorrhage. The progress of the disease depends on three factors: 1) the pathology of the cerebral vascular 2) area of the affected brain and 3) the size of the tissue that becomes ischemic. Stroke patients have swallowing difficulty due to the disorder of cranial nerves 5, 7, 9, 10 and 12, which are the nerves that control the muscles and movement associated with swallowing. Accordingly, patients have a problem in mastication; their tongue can not move to propel food in all direction, and they can not seal their lips tight which causes the leakage of food from the mouth. Apart from that, the orofacial muscles become weak and the swallowing reflex decreases. These circumstances lead to difficulty in swallowing and in coughing during swallowing. Also, patients are at risk for aspiration.

The nursing intervention on stroke patients with dysphagia utilizing a clinical nursing practice guideline consisted of the assessment of patients' readiness in order to make a decision before starting the swallowing training, and the start of patients for swallowing. Swallowing training and swallowing muscles exercise can stimulate patients' swallowing reflex. Arranging patients' position to sit upright with the head slightly flex can facilitate patients' swallowing process. It helps patients swallow more easily. Providing patients with a quiet and calm environment can allow them to concentrate on the eating and swallowing process. Offering patients appropriate food which is easy to chew and swallow can help patients consume the food. Lastly, performing an oral hygiene care before and after the meal can make patients more comfortable and also can help prevent oral infection. Accordingly, with the procedures of the clinical nursing practice guideline as previously described it is expected that patients can obtain safe swallowing without coughing and aspiration (Figure I).

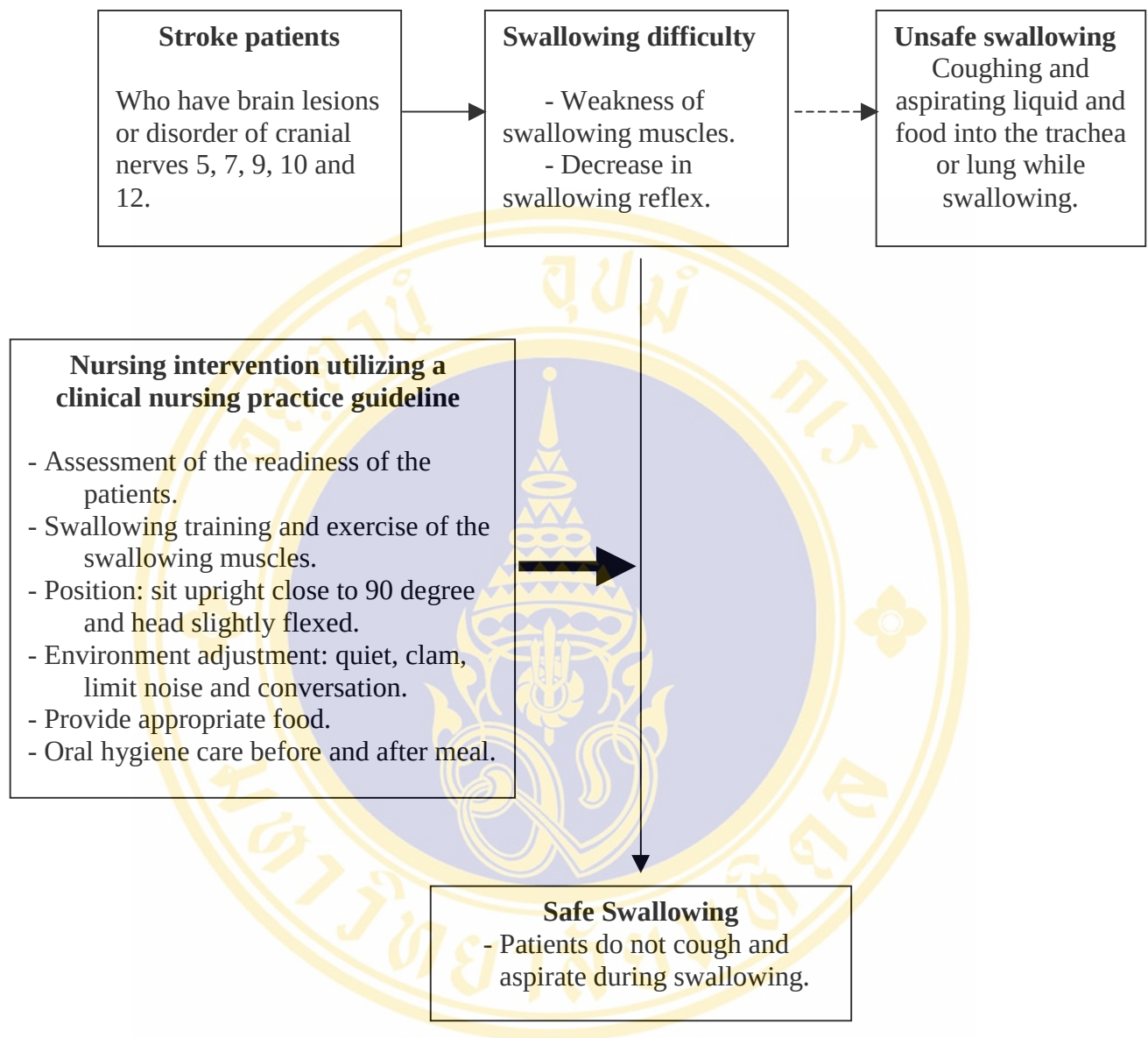


Figure I Conceptual Framework

Scope of the Study

This study focused on the effects of the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia. This study was conducted in the Neuromedical wards of the Prasat Neurological Institute from March to April 2003.

Expected Outcomes and Benefits from the Study

1. It was expected that this clinical nursing practice guideline can serve as a standard protocol to promote safe swallowing among stroke patients with dysphagia.
2. The findings from this study can be used as a basis for further related research.

Definition of Terms

1. **Stroke patients** referred to patients, who have received an examination and were diagnosed with stroke by a neurologist. In this study, stroke patients included ones who experience decreased oxygen supply to the brain tissue due to an occlusion of cerebral vascular from cerebral thrombosis, cerebral emboli or cerebral hemorrhage or subarachnoid hemorrhage, which does not include occlusion or hemorrhage from trauma, tumor or infection.
2. **Dysphagia** referred to disorder in mastication and/or swallowing due to dysfunction of organs that are associated with swallowing such as lips, cheeks, tongue, neck, upper esophagus and a reduced swallowing reflex. In this study dysphagia was assessed by the clinical assessment of swallowing form (Appendix page 84, items 5).
3. **Nursing intervention** referred to nursing practice as proposed by the clinical nursing practice guideline on safe swallowing among the stroke patients with dysphagia. This clinical nursing practice guideline was syntheses from relevant research findings and had its main focus on providing stroke patients with safe swallowing. It consisted of the assessment the patient's readiness before swallowing, swallowing training, exercise of the swallowing muscles, positioning, diet modification, environment adjustment and oral hygiene care before and after meals (Appendix page 86).

4. **Safe swallowing** referred to the responses of patients during eating and swallowing which were evidenced by the following manners: patients did not cough or aspirate during swallowing liquid or food. In this study, safe swallowing was assessed by a swallowing assessment observation form (Appendix page 90).



CHAPTER II

LITERATURE REVIEW

In this chapter, the investigator reviewed the related literature in order to understand stroke patients with dysphagia. It consisted of the following subjects:

1. The concepts about dysphagia in stroke patients
 - 1.1 The prevalence of stroke
 - 1.2 The prevalence and characteristics of patients with dysphagia
 - 1.3 Etiology of dysphagia
 - 1.4 Pathology and lesions of the brain that affect dysphagia
2. Clinical signs and symptoms of stroke patients with dysphagia
3. The factors that affect patients unsafe swallowing
4. The impact of dysphagia on
 - 4.1 Health status of the patients
 - 4.2 Emotional status of the patients
 - 4.3 Social status of the patients
 - 4.4 Economics status of the patients
 - 4.5 Caregivers
5. Swallowing management in stroke patients with dysphagia

The Concepts about Dysphagia in Stroke Patients

The prevalence of stroke

Stroke is a syndrome of cerebrovascular disorder in the nervous system. WHO defines stroke as a clinical syndrome of the nervous system that has rapidly developed clinical signs of focal (or global) disturbance of cerebral function lasting more than 24 hours or leading to death, with no apparent cause other than a vascular origin (Puangwarin, N. 2000). Most strokes are caused from cerebrovascular disorder, and have one of the following pathologies:

1. The occlusion of cerebral arteries from thrombus in the vascular (cerebral thrombosis) or embolus which come from other organs (cerebral embolism).
2. The intracerebral hemorrhage or subarachnoid hemorrhage from rupture of the cerebral arteries which does not included the occlusion or rupture of the cerebral arteries from trauma, tumor or infection.

The result of these causes various neurological dysfunctions, which are different in signs and severity in each patient. Depend on the location and size of the pathological area of the cerebral arteries and the deficiency of the blood supply to the brain tissues (Black & Matassarini-Jacobs, 1993). This causes brain hypoxia. Brief periods of hypoxia generally result in reversible neurologic deficits, whereas those lasting longer can lead to permanent neurologic deficits and cerebral infarction (Bullock & Henze, 1999: 954).

Stroke is the most common cause of all neurological hospitalizations in developed countries (Hayes, 1991) and is the third leading cause of death after heart disease and cancer. In Thailand there are about 427,800 stroke patients in a population of 62 million peoples; 70% of stroke patients had thrombotic or embolic stroke and 30% had hemorrhagic stroke (Puangwarin, N. 2002). The pathology of stroke impacts physical disability or deficit, such as disorder of cognition or intelligence, aphasia, disorder of movement or muscle weakness, dysphagia or aphagia, paralysis, disorder of incontinence, sexual disorder and sensation (Black & Matassarini-Jacobs, 1993).

The prevalence and characteristics of stroke patients with dysphagia

Approximately 51% to 73% of stroke patients suffer from dysphagia, which is the most significant risk factor for the development of pneumonia and could also delay the patient's functional recovery (Han, et al., 2001) and is one of the top ten medical problems (Benjamin, 1999).

Swallowing and eating problems can occur at any age. Epidemiological data estimates the prevalence of dysphagia among individuals older than 50 years to be as high as 22% (Ekberg, et al., 2002). Particularly prevalent is dysphagia in the elderly because the elderly are more likely to develop disorders of the central nervous system, and aspiration is commonly associated with neurogenic dysphagia due to stroke (Nakajoh, et al., 2000: 39). The Agency for Health Care Policy and Research (AHCPR, 1999) stated that about 500,000 people suffered from stroke each year, and 75% of stroke patients who were admitted in hospital experienced dysphagia, and 72% of stroke patients were aged over 65 years (Travers, 1999). Many studies have highlighted the prevalence of swallowing problems following stroke, depending on the phase and type of assessment. In acute stroke, between one-quarter and a half of patients have dysphagia, and many studies have used videofluoroscope to determine the presence of swallowing difficulties and found prevalence rates of a half to two-thirds in stroke patients (O'Neill, 2000: 460). Most swallowing difficulties in these patients occur in the oral phase and pharyngeal phase and 91% of patients have been found with a delay in the triggering of the pharyngeal swallow within three months following a stroke (Terrado, et al., 2002).

Ekberg and colleagues (2002) studied dysphagia in four European countries (France, German, United Kingdom and Spain) and found that there were significant differences among the patients. In France, there were more males with dysphagia than females, whereas in the other three countries at least two-thirds of the patients were females.

Etiology of dysphagia

Dysphagia in stroke patients is upper dysphagia or oropharyngeal dysphagia, which presented the problem in transferring the bolus from the oral to the esophagus. The disorder of nervous system and striated muscles of the mouth, neck and upper esophagus sphincter is associated with the disorder of the swallowing center and cranial nerves 5, 7, 9, 10, and 12, due to the disorder of vertebrobasilar and posterior inferior cerebellar arteries from severe damage to bilateral brainstem. Furthermore, dysphagia was found in stroke patients who had a lesion at the cerebral cortex due to the deficiency in conduct impulse from the cerebral cortex to the swallowing center (Unnapiruk, L. et al., 2000).

The disorder of the nerves which controlled the swallowing muscles, mastication, movement of tongue, and loss of gag reflex, all these abnormality made the lips to close inadequately, inefficient mastication of food, inability of the tongue to drag food in all directions. In the case of orofacial muscles weakness, food could not be pushed into the esophagus, so that resulted in swallowing difficulty (Moore, 1994).

During the last few years it has been recognized that dysphagia is a common consequence of stroke of all kinds, including those affecting a single cerebral hemisphere. In such cases the dysphagia often is resolved within a few days (Ellul, et al., 2002). In approximately 98% of stroke survivors dysphagia is resolved within 4 weeks of the disease onset (Goulding & Bakheit, 2000).

Dysphagia in stroke patients is 13% for patients with unilateral hemispheric lesions and 71% for patients with bilateral brainstem lesions (DePippo, 1994). Two in three of stroke patients are over 65 years of age because the incidence of stroke increases with age. The result of the swallowing impairment is a major health care problem and complication in elderly stroke patients (Lugger, 1994; Nilsson, et al., 1996: 275).

Pathology and the lesions of the brain that cause dysphagia

Pathology of brain that affect to swallowing and eating are (Russell & Hill, 1992):

1. Left hemisphere (dominant) lesion: The patients will usually show contralateral reductions in lip and tongue strength, rate and range of movement, and sensation, a delayed swallow reflex and contralateral reductions in pharyngeal peristalsis.
2. Right hemisphere (non-dominant) lesion: There may be contralateral reductions in lip and tongue strength, rate and range of movement and sensation, a delayed swallow reflex may occur. There may be contralateral reductions in pharyngeal peristalsis
3. Bilateral hemisphere lesions: The patients show reduced tongue and lip strength, rate and range of movement, and sensation. The swallow reflex is delayed. Reduced pharyngeal peristalsis and chronic aspiration is a continuing hazard.
4. Brainstem lesion: Lip and tongue movements are reduced in rate, range and strength, and there may be associated sensory impairment. The swallow reflex is absent or delayed. Pharyngeal peristalsis is reduced.

The studied of Meng and colleagues (2000) found that of the patients who had a lesion at the brainstem 81 % had dysphagia at the time of initial clinical swallowing evaluation, which was performed 10-75 days after the onset of stroke. And 79 % of the dysphagic individuals depended on tube feeding at the initial evaluation and 22% of all individuals could not resume oral intake at discharge.

Clinical Signs and Symptoms of Stroke Patients with Dysphagia

Swallowing is the act of moving food from the oral cavity to the stomach. It is usually both voluntary and involuntary, but most swallows occur involuntarily. Swallowing is a complex act that utilizes 31 paired striated muscles. Rapid and fine neuromuscular control leads to mastication of food to a consistency appropriate for swallowing and moving the bolus from the oral cavity to the pharynx, esophagus and finally the stomach (O'Neill, 2000: 457-458). Swallowing is a mechanical process that occurs as a continuation from mastication which is the complex mechanism associated with working of a very short rhythm and period of time (Daechabong, U. 2000). The swallowing process consists of four phases:

1. Oral preparatory phase; food is manipulated in the mouth and masticated if necessary. Mastication involves a repeated cyclical pattern of rotary lateral movement of the labial and mandibular musculature. Some food normally falls into the pharynx during this phase but does not enter the respiratory tree. When broken down into particles, food is collected into a bolus and held anterolaterally by the tongue against the palate (Zorowitz, et al., 1999).

2. Oral phase; is the first stage of swallowing: it occurs voluntarily and can be controlled. The mechanism occurs when the food is chewed until in particles and the tongue volitionally propels food posterior until the pharyngeal swallow is triggered in the area of the anterior faucial arches, located in the posterior aspect of the mouth. A labial seal is maintained to prevent food or liquid from leaking from the mouth. Tension of the buccal musculature prevents food from falling into the lateral sulci between the mandible, and the cheek (Zorowitz, et al., 1999). The tip of the tongue is elevated to press the hard palate and move to the back, the soft palate and palatopharyngeal musculature retracted, that makes the pressure in the oral cavity higher than in the oropharynx, so food then moves from the oral cavity to the oropharynx (Daechabon, U. 2000). This oral phase lasts approximately 1 second (Veis & Logemann, 1985; Zorowitz, et al., 1999).

3. Pharyngeal phase; swallowing in this phase is controlled by a swallowing reflex. The swallowing receptors at the back of the oral cavity and pharynx are triggered while the food moves into the pharynx, and an impulse is sent through the cranial nerves 5, 10 and 11 to control the swallowing center at the medulla oblongata. The control swallowing center responds through the cranial nerve 5, 7, 9, 10, and 12 that cause the soft palate to elevate to close the nasopharynx in order to prevent food entering the nasal cavity. The larynx is elevated to the top and forward, the epiglottis is slid forward and downward in order to close the larynx (Unnapiruk, L. et al., 2000). The bolus is not allowed to enter the tracheobronchial tree and breathing stops for an instant (Daechabon, U. 2000). The muscles of the pharynx contract to push the bolus to the esophagus by the relaxation of the upper esophageal sphincter. The pharyngeal phase lasts approximately 1 second during liquid swallows, but may be longer in normal adults for solid consistencies (Zorowitz, et al., 1999: 4).

4. Esophageal phase; is when the bolus is pushed along through the esophagus with the contraction called peristalsis to enter the stomach (Unnapiruk, L. et al., 2000). If the bolus is the liquid or semisolid, the bolus moves to the stomach by the assistance of gravity, and if the bolus is solid it moves through the esophagus by contraction of the esophagus (Daechabon, U. 2000), and lasts approximately 4-6 seconds. When the bolus moves to 2-5 centimeters above the stomach, the lower esophageal sphincter (LES) relaxes, allowing the bolus to enter the stomach completely, and the lower esophageal sphincter closes in order to prevent aspiration of food into the respiratory tract and prevent the gastric juices from the stomach refluxing to irritate the mucosa of the esophagus (Unnapiruk, L. et al., 2000).

Dysphagia or swallowing difficulty is a condition when swallowing cannot be started or feeling that food is sticking in the oral cavity to the stomach after swallowing, or food cannot pass through the stomach (Unnapiruk, L. et al., 2000). Swallowing dysfunction or dysphagia related to the muscles of swallowing can be classified into two groups.

1. Oropharyngeal dysphagia is a difficulty in swallowing that occurs in phase 1, 2 or 3 of the swallowing process. It occurs just before or at the initiation of swallowing. The patients cannot swallow at the beginning, so they must try to swallow several times; the bolus is unable to transit through the pharynx and the muscles of the upper esophageal sphincter. It is felt 1 second after swallowing (Unnapiruk, L. et al., 2000) or is associated with the swallowing center dysfunction. Liquid diet always aspirates to the lung or causes nasal regurgitation, or coughing during the swallowing due to an incomplete closure of the soft palate and/or epiglottis or incomplete closure of the larynx. Some patients feel the food stick and try to evacuate it. In advanced stages, they cannot swallow their own salivary secretions, and it is associated with dysarthria, nasal speech, hoarseness, lung infection, weakness, change in sleep pattern, refusal to take food or taking too much time in eating (Unnapiruk, L. et al., 2000).

2. Esophageal dysphagia is a difficulty in swallowing after a successful passage from the pharynx to the esophagus or in stage 4 of swallowing. Most patients feel uncomfortable due to food sticking in the esophagus after the bolus is transited from the pharynx and the muscles of the upper esophageal sphincter. The patients have difficulty in swallowing both solid and liquid diet. The severity of swallowing

difficulty grows slowly, which occurs from a dysfunction in contraction of the esophagus due to abnormality of the muscles and the nervous system (Unnapiruk, L. et al., 2000).

The Factors that Affect the Patients in Unsafe Swallowing

The significant problem of the stroke patients with dysphagia is the aspiration of food and liquids while eating, because of pneumonitis or respiratory obstruction in severe case, which is life threatening for the patients. From the review of related literature: the factors that affect the patients in unsafe swallowing are

1. Type of food; the patients with oropharyngeal dysphagia are found to have swallowing difficulty with such thin liquid diets as water, tea, coffee, and juices because thin liquids splash into the pharynx before the swallowing mechanism is triggered, increasing the risk of aspiration (Kayser-Jones & Pengilly, 1999: 79). Mixing solid food and liquids may increase difficulties in swallowing in the dysphasic patient. Food should be offered first, liquids should be offered only after the patient has finished the food and using liquids to wash down boluses of food should be avoided because this pushes food down too rapidly, increasing the risk of aspiration (Galvan, 2001: 40).

2. The bolus size; if the size of food is large and the patient is unable to bite and chew this causes a patient who has a problem in mastication and swallowing, inability to manage and swallow a large size of food that then causes an obstruction and aspiration (Kayser-Jones & Pengilly, 1999: 79; Killen, 1996: 104-105).

3. Taste; patients with dysphagia should not be fed bland foods, because bland foods do not stimulate enough salivary secretions to propel foods thus causing difficulty in swallowing (Galvan, 2001: 40).

4. Food temperature is important. Foods that are too hot or cold can injure the tongue. Hot foods can burn the tongue and cold foods can numb the tongue, both resulting in decreased sensation. Foods that are equal to body temperature may not stimulate enough reflexes to elicit chewing and swallowing (Terrado, et al., 2002).

5. Drinking water or liquid foods by use of straws can increase the risk of aspiration in patients with dysphagia, because the patients cannot control the bolus of fluid to the back of the mouth before the patient is prepared to swallow, thereby allowing fluid to enter the air way (Travers, 1999: 72).

6. Positioning; feeding the patients with dysphagia with the head's position lower than 90 degree, can cause aspiration easily because of the oral muscles weakness, they will poorly control their food or liquid (Kayser-Jones & Pengilly, 1999: 79).

7. Environment, sound, talking and laughing while eating makes the patients with dysphagia not concentrate on eating because they may not tolerate distractions to their interest while eating, and often cannot divide their attention between conversation or television and the act of swallowing properly. Talking and laughing while eating increases the risk of aspiration easily (Galvan, 2001: 39; Jacobsson, et al., 1997).

8. Fatigue can made the patients with dysphagia take a long time in eating which increases the risk of aspiration because their swallowing muscles are uncomfortable (Killen, 1996: 104).

9. Level of consciousness; the patients who are lethargic, disoriented or confused are at risk of aspiration while eating and swallowing (Terrado, et al., 2002).

The Impact of Dysphagia

Dysphagia in stroke patients is a significant problem that impacts on their physical, emotional, mental, social, economics health status and caregivers:

The impact on the physical health status

Patients with dysphagia are often at increased risk of developing other medical conditions. Unmanaged, dysphagia can lead to dehydration, malnutrition, respiratory infections and even death (Ekberg, et al., 2002; Kayser-Jones & Pengilly, 1999).

Aspiration food and liquid was commonly found among 40-70% of stroke patients with dysphagia which may lead to complications such as obstruction of the airway, aspiration pneumonia. If aspiration has not been treated correctly, it can cause complexity in treatment (Uttawong, T. 1998: 4). Pneumonia is present in up to 19% of acute stroke patients with dysphagia (Odderson, et al., 1995: 1130), aspiration pneumonia or septicemia also increases the morbidity and mortality rate (Galvan, 2001; McHale, et al., 1998).

Smithard and colleagues (1996) studied 121 consecutive acute stroke patients to examine the relationship between dysphagia, patients' outcomes and complications, by use of the "Bedside assessment of swallowing" in identifying patients at risk of developing complications. They also confirmed that mortality is increased if swallowing problems exist after a stroke and that patients with dysphagia have a mortality rate of 37 percent.

Horner and colleagues (1988) studied swallowing dysfunction by video fluoroscopic evaluation and they divided aspiration into two types as follows:

1. Silent aspiration is defined as the penetration of saliva or food below the level of the true vocal cords without coughing or any other outward sign of difficulty. This can be dangerous because the aspiration often goes undetected until the signs of pneumonia develop (Galvan, 2001).

2. Overt aspiration or audible aspiration is defined as aspiration of liquid or food with any other outward sign of difficulty such as coughing or overt signs of discomfort.

Veis and Logemann (1985) studied coughing from aspiration during eating, by identifying the precise time of occurrence. They divided aspiration into three phases as follows:

1. Aspiration before the swallow can occur because of reduced control of lingual or movement of the oral muscles, the organs in the oral cavity, or a delayed or absent swallowing reflex.

2. Aspiration during the swallow is caused from incomplete closure of the larynx, or vocal cord dysfunction which makes the food fall into the larynx.

3. Aspiration after the swallow may occur because of reduced pharyngeal peristalsis, unilateral pharyngeal paralysis, reduced laryngeal elevation, or cricopharyngeal dysfunction.

Factors that affect aspiration in patients with dysphagia, can be divided as follows (Uttawong, T. 1998):

1. Dysfunction of the coordination of orofacial muscles and the organs in the oral cavity, in patients with chewing difficulty, incomplete lips closure or a decrease in movement of the tongue. These dysfunctions make it difficult to transfer food from the mouth to the back of the tongue and this affects the poor beginning of the swallow and foods fall into the airway tract easily.

2. Dysfunction in the pharyngeal phase which occurs in the swallowing reflex, dysfunction from delay or absence of the swallowing reflex, decreased laryngeal elevation, incomplete closure of the larynx, decreased constriction of the pharynx muscles or paralysis, and cricopharyngeal sphincter dysfunction causes aspiration easily.

3. Abnormal voice quality and dysphonia is caused from impairment of the larynx muscles and affects the weakness of the upper respiratory tract. These problems cause the aspiration of food and liquid to the airway easily due to the poor protection mechanism of the airway.

It is widely accepted that aspiration from dysphagia is the most dangerous complication that can lead to death. However other complications such as dehydration and malnutrition are also essential and should be taken into consideration. The study of Ekberg and colleagues (2002) found that more than 50 percent of patients with dysphagia claimed that they were “eating less” and 44 percent reported weight loss during the preceding 12 months. About one-third of the patients reported, being still hungry and thirsty after their meal. It is likely that these patients are at risk of malnutrition and dehydration.

Westergren and colleagues (2001) studied the eating difficulties, complications and nursing interventions during a period of three months after a stroke. They studied 24 stroke patients and found a significant increase in patients with malnutrition ($p < .01$). Approximate 48 percent of stroke patients with dysphagia present malnutrition (Galvan, 2001). Malnutrition has a negative effect on the ability

to heal and recover (McHale, et al., 1998). It can weaken the immune system (Terrado, et al., 2002) and leading to poor health and greater risk of infection (Galvan, 2001), skin breakdown, decreased appetite (Miceli, 1999: 23), weight loss, refusal to eat, excessive swallowing, drooling, coughing or choking when eating (Killen, 1996: 100). Davalos and colleagues (1996) reported that malnutrition increased the risk of death.

Dehydration occurs from the decreased intake of liquids due to swallowing difficulty. Consequently, patients' sputum become thickening leads to breathing difficulties and this may induce upper respiratory tract infection. Patients may then have to be hospitalized unnecessarily (Ekberg, et al., 2002). In addition, dehydration can lead to dementia-like symptoms, constipation, general body functional decline, and even death (Terrado, et al., 2002). Dehydration is associated with malnutrition from dysphagia and leads to lethargy and decreased ability to perform personal hygiene, to work and socialize, and to be mobile (Ekberg, et al., 2002).

The impact of dysphagia on psychological health

Depressions are often the most common symptom regarding psychological and emotional health in stroke patients (Sisson, 1998). The cause of depression is from the disabilities of the body. Signs and symptoms of depression include lack of enthusiasm, lack of interest in taking care of themselves, isolation, moodiness, non cooperate, refusal to eat, or doing opposite to what they were told to do. The patients with dysphagia feel depressed because they cannot eat normally as others and transitory depression (no meaning in life without normal food); and anger about their situation (Axelsson, et al., 1986: 555; Westergren, et al., 2001: 417). The patients present a fear of death, fear of disability, and fear of leaving. Patients can feel lonesome, isolated from family since they cannot eat with others (Axelsson, 1986). Patients may experience eating as embarrassing, for instance because of the lack of oral control, and therefore want meals to end as quickly as possible (Westergren, et al., 2001: 417).

The study of Ekberg and colleagues (2002) found that the patients with dysphagia stated that they experienced anxiety or panic during mealtimes. Anxiety, fear, changes in image and being serious about depending on others, feeling worthless, were common according to the study of Galvan (2001), who found the more the

severity of illness the more tension, confusion and frustration it could cause. Some patients expressed aggression, quite anger, moodiness and felt physically discomfort from dysphagia (Jatupornpittat, S. 2000: 15).

Astrom, Asplund and Astrom (1992) studied the psychosocial health of elderly stroke patients in Sweden and found that patients had statistically significant increases in psychological signs after stroke. Patients, who were chronically ill and had disability, felt anxiety, fear, frustration, worthlessness or increased psychological problems which are the problems in rehabilitation mostly.

The impact of dysphagia on social status

Human being need to be part of society, need to be loved and accepted by other members of society. Additionally, the problem of dysphagia can also affect quality of life, work capacity, exercise, and leisure time (Killen, 1996: 100). Stroke patients cannot participate in social interaction because the problem of dysphagia and social isolation may arise from enteral tube feeding which disturbed the body image and changed social interaction during meals. Patients' difficulties in eating in a socially accepted way, means they cannot control their behavior following the social traditions (Axellson, 1986: 553; Westergren, et al., 2001: 417).

Changes in body image while eating, such as drooling, leakage of food from mouth, pocketing of food in mouth, coughing (Kayser-Jones & Pengilly, 1999), and spilling of food while eating, makes the patient feel uncomfortable. Dependence and taking a longer time than the others in eating, causes the patients to be isolated from society (Jacobsson, et al., 1997: 36). Decreased meeting with others, especially in elderly patients, due to embarrassment with their disability, which decreases the worth of the patient and decreases their acceptance of society (Jatupornpittat, S. 2000: 17).

The study of Ekberg and colleagues (2002) stated that 36 percent of the patients tried to avoid eating with others because of their dysphagia. Dysphagia can destroy the social opportunities and pleasures of mealtimes, affect the quality of the patients' relationship with their caregiver and family. Patients with dysphagia can become isolated, feel excluded by others, and be anxious and distressed at mealtime. Dysphagia affects a patient's dignity, self-esteem, and the regard of others.

The impact of dysphagia on economic status

Illness impacts on the financial status of both the patients and family due to the expense of health care. Especially it impacts on stroke patients, who need continual follow up therapy for a long time, in order to control the cause of the disease and to provide rehabilitation by physical therapy. These affect the patients and family by increased expense. At present, we have a project of health care insurance for all, in which the patients pay only thirty baht each time they come to see the physicians. That helps the patients and family decrease the burden of payment and helps the patients access the public health service, moreover, the government have got a lower budget 1,202.40 baht per person per year (The Office of Healthcare reform project, 2545). This means that the government maintains funding over the set budget particularly in patients with chronic illness such as the stroke patients.

When the stroke patients with dysphagia, cannot manage in swallowing safely, it can lead to complications from dysphagia such as respiratory infections, dehydration and malnutrition which causes the patients to stay in hospital for a long period. The study of Odderson and colleagues (1995) found that stroke patients without dysphagia had a length of stay shorter by 2.0 days ($p = .05$) than that of the patients with dysphagia. And Barer (1989), found that patients with dysphagia on admission were more likely to remain hospitalized at 1 week, 1 month, and 6 months than patients with normal swallowing and the former had increased expenses for care (Barer, 1989 cited by Odderson, 1995).

Patients, who develop aspiration pneumonia, usually require hospitalization for intravenous antibiotic administration and, often mechanical ventilation (Galvan, 2001: 39). This makes the government pay much more for these costs.

The impact of dysphagia on caregivers

Stroke causes physical disability or deficit. Stroke patients have to depend on caregivers. Caregivers must make both bodily and mental efforts in caring and they must spend most of their time to take care of the patients. That can cause serious problems to caregivers in physical, emotional, mental, economic and social aspects. Changes in life style (Julemate, P. 1997), causes frustration for the family and caregivers in caring for patients with dysphagia (Shanley & O'Loughlin, 2000: 35).

Because the patients spend more time in eating than normal and caregivers need to prepare special equipment for patients to use in eating accurately, and prepare appropriate food such as food that is easy to chew and swallow, and positioning, and take care closely for patients to complete meals before drinking water in order to prevent aspiration (Julemate, P. 1997). Caregivers may have a physical health problem due to spending most of the time in taking care of the patients. They may have decreased time for rest, be anxious and strained, have increased responsibility and burden, face the changing moods of the patients that make the caregivers feel stress, hopelessness, embarrassed and could be a burden in taking care of the patient (Phuwarawutpanich, W. 1995).

Swallowing Management of Dysphagia in Stroke Patients

Dysphagia is a significant problem and life threatening for the stroke patients; a method of management of dysphagia should be found, so the patients should receive the same accurate nursing care for safe swallowing to prevent complications and provide a good quality of life.

The investigator had reviewed the traditional nursing interventions for patients with dysphagia, and found that these following manners had been conducted to provide care for this group of patients:

1. When the stroke patients were admitted, nurses should ask for their illness' history and make a physical assessment. But they did not assess about swallowing because they were not aware that dysphagia in stroke patients was one of the significant problems.
2. The patients who did not receive orders for no oral ingestion, should start eating but nurses did not assess the readiness in swallowing before starting the patients to eat. Soft diet was always the first meal of the patients.
3. Positioning, the patients should always be with a head position 45 to 60 degree elevated.

4. The swallowing difficulty was identified when the patients aspirated while drinking water or eating, or could not swallow the food or swallowing, drooling and leakage of the food from the weak side of the mouth, or it was found the patients had got a fever with a history of coughing and aspiration.

5. Nurse should notify the doctor, when they found the patient had a swallowing problem.

6. The method for helping the patient with dysphagia, is that doctors should consider retaining a nasogastric tube for enteral feeding, and nurse fed the patient following through the work instruction of nasogastric tube feeding for general patients to maintain adequate food and fluid intake. This is according to correct procedure and is safe from complications, but several times the tube was removed by accident that may result in the patient losing some food. And sometimes nurse tried to feed the patient without initial assessment and test of swallowing that made the patient at risk of complications.

7. Most patients, who received enteral feeding, were discharged with nasogastric tube.

All steps as mentioned above are the nursing care for stroke patients with dysphagia, but it seems that the patients are at risk of complications. It impacts on physical health status, and the psychological, social and economic status of the patients, and also impacts on the family and caregivers. Furthermore, the nursing care for the stroke patients with dysphagia, dose not have an accurate procedure in order to practice it in the same way, every time. Also there is no the evidence to confirm if the practice is accurate or not. If dysphagia is effectively managed, the patients will swallow in a correct and safe way. That means the patients receive adequate nutrition and fluid intake which can improve rehabilitation rates and reduce the length of hospital stays. It also reduces the incidence of complications (Dangerfield & Sullivan, 1999).

The Constitution of Thailand (1997) was a political reform for Thai society aimed at participation in democracy, and there are many provisions that affect health care. So the Prime Minister's office has instigated a procedure of health care reform 2000 in order to pass a bill for national health care and to form health care insurance for all the population. So Thai people, can access the health care service as needed.

The health care service should be standard and people should want to use it. The service should consider the status and dignity of all the people equally. The health care insurance is the basic rights of the people (The Office of Healthcare reform project, 2002).

Therefore the nursing service has to change from the traditional way to improve respect, quality and efficiency. Nursing care needs to draw on a wide range of evidence based that can explain through scientific evidence the best standard of nursing practice and follow through the health care insurance for all in order to respond to the needs of and to protect the rights of patients. The patients should receive safe and appropriate services (Moloney, 1996).

As can be seen, the nursing care for stroke patients with dysphagia, should ensure safe swallowing without complications, a standard clinical nursing practice guideline is needed. The investigator has circumspectly reviewed the literature to study and discover a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia by using empirical evidence from research and utilizing research together with experience from nursing practice to develop a standard clinical nursing practice guideline for stroke patients with dysphagia.

The investigator reviewed relevant literature, and synthesized exhaustively following through the research evaluation of methodology and possibility of utilizing research. The investigator found that the research had sufficiency quality to create a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia. There are several steps in management as follow:

Step 1 Assessment: Patient's assessment should be done within 24 hours of admission or before any oral intake (Odderson, et al., 1995: 1130) by a clinical assessment or physical examination.

1. Assess consciousness by use of Glasgow Coma Scale (GCS) which has the highest score at 15, which consists of (1) eyes opening: 4 means opens eyes spontaneously, 3 means opens eyes to speech command, 2 means opens eyes to noxious stimuli, 1 means does not open eyes (2) verbal response: 5 means oriented and converse, 4 means converse but is confused, 3 means articulates inappropriate words, 2 means incomprehensible sounds, 1 means no sound (3) Movement: 6 means follows

commands, 5 means pushes noxious stimulus away, 4 means withdraws from noxious stimulus, 3 means abnormal flexion (decorticate response), 2 means abnormal extension (decerebrate response), 1 means no motor response to noxious stimuli.

2. Assess ability in physical functions, which can be assessed from the ability in physical activity of the patients. Activities that were chosen in the assessment are the activities of daily living. Barthel Index is the instrument, which is used for stroke patients, and was developed by Mahoney & Barthel. The Barthel index consists of a list of 10 items for evaluating functions, which are feeding, grooming, transfer, toilet use, mobility, dressing, stairs, bathing, bowels, and bladder (Jatupornpiput, S. 2000). The scores of Barthel index ranging from 0 for total dependence to 100 for full functions/independence (can help themselves in all activities).

From the study of Nakajoh and colleagues (2000: 40-41), it was found that the score of the Barthel Index of daily living activity was highest in oral feeding without dysphagia (Mean = 72.7 ± 5.1 , $p < .001$) and it was higher in oral feeding with dysphagia (Mean = 25.5 ± 3.5 , $p < .01$).

Because of the Barthel Index was developed for western people so it may be unsuitable for use in eastern countries, Suthichai Jitapunkul and colleagues developed the Barthel Index of activities of daily living (Barthel ADL Index) to measure the disability or dependence of the Thai elderly which consists of 10 activities the same as Barthel Index but with different scores in order to be more accurate to measuring Thai socio-cultural dimensions. The Barthel ADL Index of Suthichai Jitapunkul was used to measure the disability of 703 Thai elderly in Klongtier community in order to find the level, type and factors of disability and test the accuracy of an interview form used to survey the Thai elderly. The result of the study found that the Barthel ADL Index had constructed validity and was appropriate for use in the survey of the level of disability of Thai elderly (Jitapunkul, S. 1998).

3. The clinical assessment of swallowing is assessed as follows:

3.1 Gag reflex, is assessed by use of a cotton bud or tongue depressor stroking the posterior pharyngeal wall on each side. The normal response is elevation and constriction of the pharynx with retraction of the tongue (Wiriya-vechakun, U. 1998: 67).

3.2 Swallowing reflex is assessed by placing a finger on the thyroid and asking the patient to swallow his/her own saliva. Feeling the larynx elevate is a normal swallowing reflex (Killen, 1996: 100-101).

3.3 Cough reflex is assessed by telling the patients to cough. Patients who can cough upon command can cough reflexively (Killen, 1996: 101). Furthermore, cough reflex can be assessed by asking the patient to cough twice in succession, observing the strength and effectiveness in clearing secretions. Patient without a good cough reflex may become silent aspirators with food or liquid entering the trachea without any warning (Shanley & O'Loughlin, 2000: 37).

3.4 Assessment of the voice quality of the patient, speech and voice characteristics also gives information about the swallowing mechanism. The patient's ability to articulate clearly is assessed by asking the patient to count, recite days of the week or months of the years, noting speed and precision. It can be assessed if the speech sounds hypo or hypernasal, or if loudness has been affected. A harsh or hoarse vocal quality may be related to vocal cord dysfunction and predict aspiration problems. If the patient has changes in voice, wet or gurgly voice after swallowing, it suggests the presence of material on the vocal fold (Killen, 1996: 101; Shanley & O'Loughlin, 2000: 37). A wet voice can be assessed by listening to the vocal quality as the patient says "ah" (Travers, 1999).

3.5 Assessment of the strengthening of the facial muscles, to compare the power and symmetrical movement of facial muscles can be assessed by asking the patient to smile, and to make grimacing and puckering movements. Abnormalities in facial expressions such as an asymmetric smile or drooping suggest facial muscle weakness (Terrado, et al., 2002; Wiriyavechakun, U. 1998).

3.6 Assess movement and strength of tongue and soft palate. Anterior tongue assessment by ask the patient to extend the tongue then touch the upper and lower lip. Posterior tongue assessment by ask the patient to say "ka" , posterior of the tongue will touch the soft palate and soft palate assessment by ask the patient to open his/her mouth and say "a", soft palate elevate both symmetry (Killen, 1996: 101).

3.7 Assessment of lip closure, adequacy of lip closure is assessed by having the patient close his mouth, puff out the cheeks, and observe the patient's ability to hold the air in his/her mouth. Lip closure is important in protecting food or

liquid leaking out of the mouth while chewing (Killen, 1996: 101). Assessment of the oral cavity can show the abnormality of swallowing in the oral phase (Logemann, 1983 cited by O'Neill, 2000).

3.8 Assess the strengthening and movement of jaw, is assessed by instructing the patient to bite and release evenly and smoothly several times. If their abnormality of the jaw's movement and he/she cannot chew well, the patient will take a long time in eating (Terrado, et al., 2002).

Decision making in diagnosis of dysphagia from the clinical assessment has often used the universal criteria of Daniels and colleagues (1997), which are when the patient have two or more abnormalities of clinical features in dysphonia, dysarthria, gag reflex, volitional cough, cough after swallow, voice change after swallow which suggests that the patient may have dysphagia and it can be confirmed by use of video fluoroscopic swallow study (Bakheit, 2001). In this study, the investigator used the clinical assessment as mentioned before to diagnose dysphagia since the use of video fluoroscopic swallow study is no longer used in health care institutes in Thailand.

Step 2 Clinical nursing practice guidelines for stroke patient with dysphagia: Nursing intervention for the stroke patients with dysphagia has the purpose of patient's safe swallowing. The nursing intervention consist of assessment of the patient's readiness before swallowing training or starting a meal, swallowing training, development of the strength of swallowing muscles, environment adjustment, positioning, diet modification, and oral hygiene. The nursing intervention is divided in 3 phases as follow:

Phase 1: The assessment of the patients' readiness. Assessment of the patient's readiness before starting to swallow includes criteria for safe swallowing and is (1) the patient is alert, follows simple requests, has a clear, strong voice, and can produce a strong cough; (2) the patient can handle his or her own secretions without difficulty, and can swallow ice chips and sips of ice water briskly; and (3) the larynx elevates completely at the time of swallowing, the voice remains clear after swallowing, and there is no coughing afterwards. If the patient meets all these criteria for safe swallowing, diet may be ordered for the first meal. If the patient does not meet

these criteria for safe swallowing, oral intake will remain restricted until the patient meets all the criteria (Odderson, 1995: 1130).

Perry (2000) studied to identify, implement and establish sensitivity and specificity of a screening tool for use by nurses. This study found that the Standardized Swallowing Assessment (SSA) (Ellul, et al., 1993, 1996, 1997) was the most appropriate tool for screening the patient with dysphagia. The result of using the SSA by nurses with 76 stroke patients, found that based on 68 completed screening clinical judgments of swallow function, it revealed a sensitivity of 0.97 and specificity of 0.9 for detection of dysphagia, with positive and negative predictive values of 0.92 and 0.96. This was significantly supported the use of the SSA by nurses.

The investigator selected the SSA, which is the pre-swallowing screening checklist, for assessment patients with dysphagia, in order to decide to start swallowing training or start a diet. This assessment confirms the patient's safety during training or swallowing, and confirms that the patient will not receive danger from aspiration of food or liquid during swallowing.

Phase 2: Swallowing training and swallowing muscles exercise. Stroke patients with dysphagia need to have swallowing training in order to trigger the swallowing muscles and swallowing mechanism, and make the patients know the safe swallowing method. Swallowing training is by using the supraglottic swallowing technique, in which the patient takes a breath and holds it, tips the chin tightly to the chest, swallows hard, lifts the chin up, then coughs or clears the throat purposefully (Terrado, et al., 2002). The supraglottic swallowing technique may improve the elevation and closure of the larynx during swallowing (Bakheit, 2001). Swallowing training of 10 minutes each time, encourages the patients to swallow their own saliva every one minute, 3-4 times a day (Killen, 1996: 104).

Exercising the swallowing muscles, helps to improve strengthening and increases control muscles in the oral cavity. Kissing lips, using the tongue touching the corner of the mouth, protruding the tongue and tip touching the nose and chin is used. Miller and Langmore (1994) reviewed articles that were designed to study the treatment and efficacy of oral motor exercises in adults with oropharyngeal dysphagia. Their review article concluded that "strengthening exercise may improve function for

selected patient in a state of recovery. Exercise of orofacial muscles helps to improve lip closure, mastication and movement of tongue (Bakheit, 2001).

Phase 3: Providing patients with safe swallowing during a meal.

1. Positioning while eating is important because gravity encourages proper bolus movement to the stomach. In general, the patient should be sitting in an upright position with the chin parallel to the floor or slightly forward, and the shoulders and face slightly forward. The hips should be flexed to a slightly greater than a 90 degree angle. After eating the patient should remain sitting upright for 30 minutes (Galvan, 2001; Travers, 1992: 72; Westergren, et al., 2001: 417).

Positioning for stroke patients with dysphagia is different according to the pathology of the each patient. To control the flow of food and liquid for safe swallowing, the patient should always sit upright at 90 degree with the head and trunk in a neutral position. While swallowing the patient should be asked to tip the chin tightly to the chest to protect food or liquids entering the trachea. If the patient coughs while eating or drinking or delays in triggering the swallowing reflex tilt the patient's head forward. If reduced tongue strength, coordination, and movement, inability to propel bolus back with tongue, or oral residue occurs, tilt the patient's head back and make him/her swallow twice. If patients have unilateral oral and pharyngeal weakness, or pocket food, tilt the patient's head to the strong side. If patients have unilateral pharyngeal weakness, wet voice or cough, rotate the patient's head to the weaker side and place food on the unaffected side of tongue (Logemann, 1998 cited by Terrado, et al., 2002: 14).

2. Environment adjustment means eliminating noise and creating a quiet calm and desirable atmosphere (Jacobsson et al., 1997; Westergren, et al., 2001). Do not leave the patient alone and do not turn on the radio and television while eating. Conversation during mealtimes should be kept to a minimum, as it allows the patient to concentrate on eating and swallowing. Keeping conversation to a minimum may be best, especially when the patient needs to be reminded repeatedly to "take a bite, now chew, hold your breath, and now swallow" (Kayser-Jones & Pengilly, 1999: 81; Travers, 1999: 71). Nurses should allow ample time for eating to minimize patient fatigue and frustration. If necessary, patients may need a rest period prior to meals. If the mealtime exceeds 45 to 60 minutes, the patient should be provided with smaller or

more frequent meals. During the early phase of a swallowing retraining program, keeping suction equipment close by as it is useful, if choking occurs (Terrado, et al., 2002).

3. Diet modification is essential for safe swallowing in patient with dysphagia (Goulding & Bakheit, 2000). Modification in the texture of food is part of the swallowing assessment. Liquids should be thick or of high viscosity, that makes the liquid slowly flow by taking a small bite, then chewing well then swallowing. Changing the viscosity of liquids should be done when the patient swallow well (Uttawong, T. 1998). Food for the patients with dysphagia should be provided such as ground meats moistened with gravy, soft-poached fish, mashed potatoes, soft cooked vegetables, thick soups, and fresh fruits (Kayser-Jones & Pengilly, 1999: 82). Food composed of solid and liquid increases the difficulty in swallowing for the patient with dysphagia (Galvan, 2001: 40).

Food should have good smell and taste which helps the patient to increase saliva, which makes it easy to propel food and thus easy to swallow. Foods with stronger tastes, particularly tart flavorings such as lemon, not only increase salivation but also improve bolus formation/control and improve the triggering of the pharyngeal swallow (Terrado, et al., 2002). Nurses should provide the flavorful and appetizing food for the patients.

A food temperature, slightly colder or warmer than the body temperature, is best as it stimulates chewing and swallowing. The therapeutic temperature is about 39-44 °C (Rennie & Michlovitz, 1996 cited by Khunsong, K. 2001: 24). Nurses should feed the patients when they feel hungry. Bites should be manageable, about a half to one teaspoon at a time. Place food on the unaffected side of their tongues, which allows them to sense where food is. In the interest of optimal nutrition, food should be offered first: liquids should be offered only after the patient has finished the food, and water for the patient with dysphagia should always be chilled. Liquid sipped in an amount of at least 3 ml. is often tolerated best (Galvan, 2001: 40; Terrado, et al., 2002; Travers, 1999: 72).

If the patient has a cough while drinking, liquid should be more concentrated than water, juice instead of water. If the patient still has mucus in the throat after coughing, grape or pineapple juice will help to smooth secretion. If the patient has

inadequate nutrition, the supplementary nutrition should be provided for the patient. The patient, who has high risk of aspiration, should ingest nil by mouth (Logemann, 1997 cited by Westergren, et al., 2001; Terrado, et al., 2002).

4. Oral medication should be prepared in such a way as to make it as easy as possible to swallow. In case of unilateral weakness, the patient should place the medication into the stronger side of the mouth. Pills should be taken one at a time to ensure that each is swallowed adequately. If the patient cannot tolerate thin liquids, these medications should be thickened to facilitate swallowing. Straws should be avoided, because they decrease the amount of control the patient has over volume intake, and increase the risk of aspiration. Do not hold a cup to the patient's mouth if he is able to guide it himself (Galvan, 2001: 41).

5. Nurses should prepare the patient for mealtime by reinforcing the importance of taking oral hygiene (Travers, 1999: 71; Westergren, et al., 2001: 420). After the meal, oral hygiene must be provided to the patients and their mouths inspected to prevent food remaining in their cheeks, especially for the patient with facial paralysis (Kayser-Jones & Pengilly, 1999: 81). Poor oral hygiene can contribute to aspiration pneumonia and death because aspiration of saliva alone can carry gram-negative enteric rods into the lungs (Terrado, et al., 2002: 7).

Step 3 Swallowing Assessment

Outcome evaluation from the effects of nursing intervention utilizing the clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia, means that the patients can swallow food and liquid without aspiration of food and liquid entering the trachea while swallowing, or having a cough that makes the food or liquid return out of the nose. The review of literature and research of Bakheit (2001), Kayser-Jones and Pengilly (1999), Killen (1996), Odderson and colleagues (1995), Terrado and colleagues (2002), Travers (1999) and found that the assessment for safe swallowing can be divided into 2 dimensions as follows:

1. Assessment of the swallowing technique means that the patient has a method to protect himself from aspiration while swallowing which allows the patient to swallow safely. The significant technique for swallowing safely is when the patient takes a breath and holds it, places a bolus of food or liquid in the mouth, swallows

hard, and takes off a breath. This method is the modified supraglottic swallow technique, thus preventing aspiration. Furthermore, if the patient tips the chin tightly to the chest or does a chin tuck, this further minimizes the laryngeal opening, and closes the true vocal cord, thus preventing aspiration and it prevents coughing, choking, hiccupping, breathlessness, wet/gurgly voice, pocketing and feeling the food stick in the throat after swallowing.

2. Assessment of the ability to control and the strengthen the swallowing muscles means the patient has improved the strength of swallowing muscles, by exercising orofacial muscles, such as kissing lips, using the tongue touch the corner of the mouth, protruding and using the tip of the tongue to touch the upper and lower lips. Exercise of orofacial muscles helps the patient in controlling and increase the strength of the swallowing muscles, which is assessed from an increase in lip closure, mastication, and movement of the tongue, lack of leakage of food or liquid from mouth while swallowing, no residue in the oral cavity, thus helping the patient to have safe swallowing. If there were leakage of food or liquid from the mouth while swallowing or the patient felt that food was sticking in the throat after swallowing, it means that the patient still has swallowing difficulty.

Summary

Swallowing is a complex process of functions of the nervous system. The review of literature about the process of normal swallowing is the basis of understanding the process of swallowing difficulty of stroke patients who have pathology in the area of the cerebral cortex, basal ganglia, brain stem, cerebellum and cranial nerves, especially in a stroke with unilateral hemiplegia. In addition, there is weakness of orofacial muscles and movement of the tongue which is the promotion factors of dysphagia among stroke patients.

Dysphagia is a common and severe problem that has impacts on the physical health, and psychological, emotional, social and economics status of the patient, as well as his/her family. Dysphagia leads to lung infection, dehydration and

malnutrition. These complications could be prevented, if dysphagia was found at the beginning and was managed appropriately. Nurses are often the first to observe the signs and symptoms of dysphagia. Therefore nurses are significant persons in assessment and managing the patient with dysphagia in order to prevent complications and promote safe swallowing.

The investigator had reviewed traditional nursing intervention in stroke patients with dysphagia, and found that there is no standard nursing practice for dysphagia used to answer the questions of the patient and family. The investigator investigated the relevant research in order to use the evidence based to discover the assessment and management of stroke patients with dysphagia, and developed the clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia. It consisted of the assessment of the patient's readiness before swallowing, swallowing training and exercise to strengthen the swallowing muscles, positioning, diet modification, oral medication, providing a suitable environment and oral hygiene care for safe swallowing in stroke patients with dysphagia in order to prevent complications and to improve the quality and efficiency of nursing practice.

CHAPTER III

METHODOLOGY

This study was a quasi-experimental research, one group pre and post-test. The aim of this study was to investigate the effects of nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia.

Population and Samples

The population in this study was the group of stroke patients who were admitted to the Neuromedical wards at Prasat Neurological Institute.

The samples of this study included 10 stroke patients with dysphagia who were invited to join the study. In order to recruit the study sample these following criteria were employed:

1. The sample had dysphagia, as assessed by the clinical assessment of swallowing: assessed gag reflex, swallowing reflex, ability to perform voluntary cough, phonation, symmetry and strengthening of facial muscles, strengthening of the tongue, lips closure and strengthening of jaws (Appendix page 84, Item 5). When the abnormalities in more than two clinical features were detected, patients would be identified as having “dysphagia”.

2. The sample had readiness for swallowing, as assessed by the instrument: Standard Swallowing Assessment. In order to be identified as “readiness for swallowing” the patients should have all the properties below (Appendix page 87):

1. awake and alert, or responding to speech (GCS > 11).
2. able to be positioned upright, with some head control
3. could cough when asked
4. able to maintain some control of their saliva

5. able to lick top and bottom lip
6. able to breathe freely
7. did not have a wet or hoarse-sounding voice.

Patients, who were not considered suitable for oral feeding by the staff neurologist, were excluded from the study. The sample, who had met the criteria as previously described, received the swallowing assessment (pre-test) for the baseline data, and had received the swallowing assessment after they received the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing for 8 meals (post-test).

Setting

The setting of this study was the Neuromedical wards of the Prasat Neurological Institute which is a special care institute for neurological patients. It has 300 admission beds for both neurosurgical and neuromedical patients. The Neuromedical wards, in which the investigator conducted this study, admitted patients who were treated only by medication. There were two Neuromedical wards one for males and one for females, and each ward has 23 beds, 17 beds for ordinary patients and 6 beds for special patients. These wards were selected because of their admission of stroke patients.

The routine care of stroke patients with dysphagia were

1. The patients were seated in an upright position while eating.
2. Family and caregivers were educated and advised in helping the patients to choose food that was easy to chew and swallow.

Otherwise, there was no particular protocol for managing dysphagia for the patients.

Instrumentation

The instruments for data collection in this study consisted of 4 parts as follows:

Part 1: Patients' demographic questionnaire which consisted of gender, age, marital status, educational background and occupation of the patients (Appendix page 83).

Part 2: The Clinical Assessment Package. This package consisted of items and tools for assessing patients' clinical characteristics regarding illness, physical functions, and ability to swallow. Details of the Clinical Assessment Package (Appendix page 84) are presented as follows:

2.1 Patients' diagnosis and underlying diseases

2.2 The deficit of the extremities' movement

2.3 Patients' consciousness: used Glasgow Coma Scale (GCS) which consisted of categories as follows:

Level of response	Scale Value
1. Eye Opening	
Spontaneously	4
To speech	3
To pain	2
None	1
2. Verbal Response	
Oriented	5
Confused	4
Inappropriate words	3
Incomprehensible	2
None	1
3. Motor Response	
Obeys commands	6
Localizes pain	5
Withdraws	4
Abnormal flexion	3

Abnormal extension	2
None	1

The highest score of GCS were 15 points.

2.4 Physical functions assessment: Within this part the investigator selected the Barthel Index, the standard instrument that has been widely recognized. British Stroke Research Group and U.S. Department of Health and Human Service claimed that Barthel Index was a recommended instrument for assessing basic activities of daily living among the elderly or ones who were in an activity limited situation. Also the Barthel Index had good validity, reliability, and sensitivity and required less than 5 minutes (Chattaya, J. & Paris, W. 1999) for assessing the patient. The Barthel Index consisted of ten items of activities: feeding, bathing, grooming, dressing, bowels, bladder, toilet use, transfers (bed to chair and back), mobility (on level surfaces) and stairs (Jittapunkul, S. 1998)

The total score of the Barthel Index ranged from 0 to 100: score 0 referred to very severely disable and 100 referred to physically independent but not necessary normal or socially independent. The ranges of score for each activity are presented as follow:

- Item of activities about feeding, dressing, toilet use and stair climbing (4 items), had a score value of 0, 5, and 10

- 0 means unable to perform or dependent

- 5 means needs assistance

- 10 means able to perform independently

- Item of activities related to bowels and bladder function (2 items), had a score value of 0, 5, and 10

- 0 means incontinent

- 5 means occasional accident

- 10 means continent

- Item of activities about bathing and grooming (2 items), had a score value of 0, and 5

- 0 means dependent

- 5 means independent

- Item of activity about transfers (from bed to chair and transfer back) had a score value of 0, 5, 10, and 15

0 means unable, no sitting balance

5 means major help (one or two people, physical), can sit

10 means minor help

15 means independent

- Item of activity about mobility had a score value of 0, 5, 10, and 15

0 means immobile or able to move no further than 50 yards

5 means able to move beyond 50 yards but required wheelchair

10 means able to walk beyond 50 yards with help of one person

15 means able to move independently beyond 50 yards (without any assistive devices such as walking cane)

2.5 A Clinical Assessment of Swallowing Form: This assessment form consisted of items to assess gag reflex, swallowing reflex, strengthening and symmetry of facial muscles, lip closure, tongue (strengthening, power and movement), phonation and volitional cough. If the abnormality of two or more than two clinical features were detected, the patient would be identified as having swallowing difficulty (Daniels, et al., 1997).

Part 3: Nursing intervention for the stroke patients with dysphagia: This was the nursing intervention, that the investigator developed from searching the relevant research from CD-ROM data base: CINAHL, Electronic Journal, Ovid Medline and from the internet website such as yahoo.com, google.com etc. The keywords used in searching included dysphagia, deglutition disorder, eating difficulty, swallowing difficulty, nursing intervention, nursing research, stroke, and cerebrovascular disease. Six relevant research studies were selected. Out of these six studies, two were associated with the assessment of patients with swallowing difficulty (Perry, 2001; Daniels, et al., 1997), two were associated with the nursing intervention (Odderson, et al., 1995; Westergren, et al., 2001), and two were associated with the effectiveness of nursing intervention on promoting swallowing abilities in stroke patients (Jacobsson, et al., 1997; Meng, et al., 2000).

The six research studies as mentioned above were then analysed and considered by employing the criteria for research evaluation as proposed by Polit and

Hungler (1999). The criteria for evaluating feasibility, transferability and cost-benefit of utilizing the research findings in practice were also considered. Finally, the findings were synthesized and the clinical nursing practice guideline to promote safe swallowing among stroke patients with dysphagia was formed. Since this clinical nursing practice guideline was constructed solely by the investigator, it was therefore tested for content validity. Seven experts (Appendix page 77) were invited to determine the quality of the guideline. According to the experts' recommendation, only a minor change in some procedure of the guideline was needed.

The clinical nursing practice guideline was composed of the assessment protocol for patients' readiness, swallowing training, exercise of the swallowing muscles, positioning, diet modification, environment adjustment and oral hygiene care before and after meals (Appendix page 86).

The clinical nursing practice guideline had 3 phases as follows:

Phase 1: The assessment of the patient's readiness, using a Standardized Swallowing Assessment (SSA) (Ellul, 1993, 1996, 1997) to assess the patients before allowing them to swallow. The SSA consisted of 7-items which included level of consciousness, the ability to control the head in an upright position, coughing, the ability to have some control of their own saliva, the ability to control their tongue, breathing and speech. The criteria in identifying patient's readiness included the following patients' abilities and characteristics:

1. awake and alert, or responding to speech (GCS > 11).
2. able to be positioned upright, with some head control
3. could cough when asked
4. able to maintain some control of their saliva
5. able to lick top and bottom lip
6. able to breathe freely
7. did not have a wet or hoarse-sounding voice.

Patients who showed all of the 7 characteristics as described above would be allowed to start swallowing training and swallowing muscles exercise phase.

Phase 2: Swallowing training and swallowing muscles exercise phase. When it was assured that patients were ready to swallow the following nursing interventions was started.

1. Swallowing training: patients were trained to swallow their own saliva. Patients were asked to take a breath and hold it, flex the head to hold the chin tightly to the chest, swallow the saliva, then lift the chin up and breathe out. Patients were asked to repeat the former step for 10 minutes. Also they were scheduled to perform swallowing training 4 times a day at least one hour prior to each meal.

2. Exercise of the swallowing muscles: patients were asked to perform kissing lips, smile, open the mouth widely, protrude the tongue to touch the upper and lower lip and then close their mouth. Exercise was for five minutes, four times a day at least one hour before meals.

Phase 3: Providing patients with safe swallowing during a meal. About 45 minutes after the patients had received the swallowing training and exercised the swallowing muscles; patients were managed for eating sessions as follow:

1. Oral hygiene care before a meal.
2. Positioning: the sample sit upright at 90 degree with the head and trunk in a neutral position and the head of the patient was set for accuracy. While eating if the patient coughed or was slow in swallowing, the head was tilted slightly forward; if the food was pocketed in the mouth, the head was rotated to the unaffected side.
3. Environment adjustment: a quiet, calm and desirable atmosphere was created, which eliminated noise, talked as necessary such as open mouth, chew and swallow.
4. Diet adjustment: food was provided that was soft, slightly chewable, divided into pieces, fed a haft to one teaspoon per bite, placing food on the unaffected side.
5. If the patient had a wet voice after swallowing, the patient was told to cough several times in order to clear the throat before continuing eating.
6. Oral medication: the patient should place the medication into the stronger side of the tongue and take one tablet at a time.
7. The patient should be given time to swallow, not rushed and be encouraged when swallowing.
8. Oral hygiene care after a meal.

9. If the mealtime exceeds to 45 to 60 minutes, the patient should be provided smaller or more frequent meals.

Part 4: Observation for swallowing difficulty: A swallowing assessment observation form was an observation form to observe the patient during swallowing liquid and food in order to evaluate whether the patient had safe swallowing or not. The questionnaire consisted of 7 items; observing the patient about aspiration, coughing, choking or breathlessness, wet or gurgly voice, pocketing of food and leakage of liquid and food from the mouth (Appendix page 90).

The questionnaire was scored as “yes” or “no”. If the answer was “yes” the score was 1 point while the answer “no” was 0 point.

Validity and Reliability of the Instruments

1. Validity

1.1 Language Validity: the instrument, Standardized Swallowing Assessment (English version), was developed by John Ellul and colleagues (1993, 1996, 1997), and translated by the investigator and it was validated by an expert in the English language. The instrument was revised in language according to the expert’s recommendations (Appendix page 78).

1.2 Content Validity: the instruments, consist of 4 parts: 1) demographic questionnaire, 2) the clinical assessment package, 3) the clinical nursing practice guideline for safe swallowing among stroke patients with dysphagia, and 4) a swallowing assessment observation form, were validated by seven experts: one physician expert in medical neurology, three experts who were nursing educators, two from the Department of Surgical Nursing and one from Department of Medical Nursing, one expert in nursing care for critical neurological patients and two experts from the occupational therapy. The instruments were revised in content according to the experts’ recommendation (Appendix page 77).

2. Reliability

The revised data collection instruments and the nursing intervention were initially tested with 10 stroke patients with dysphagia in order to test for reliability. Cronbach's Alpha Coefficient was used to test reliability of the Barthel Index (reliability = .965). Kurder-Richardson was used to test reliability of the swallowing assessment observation form (reliability = 0.630).

Data Collection Procedures

The data collection process was performed by the investigator as follows:

1. The study proposal was submitted from the Faculty of Graduate Studies to the Director and the committee for Human Research of Prasat Neurological Institute in order to obtain provisional permission.
2. The investigator met the committee of Prasat Neurological Institute to explain the nature of the study and the study procedures.
3. The investigator started every day at 7.00 a.m. to survey the patient who were diagnosed as stroke, and before the patient started the first oral intake of food and liquid.
4. Stroke patients who met the study criteria were approached. The investigator introduced herself, established a relationship, informed the patient about the purpose of the study, briefly explained the procedures of the study, explained the patient's rights and asked for cooperation in following through the study. When the samples decided to participate in this study, they signed the consent form (Appendix page 79).
5. The investigator collected data in the following steps:
 - 5.1 The sample first was asked for demographic data, then had a clinical assessment package were assessed.
 - 5.2 The sample was observed for swallowing difficulty utilizing a swallowing assessment observation form while eating the first meal in order for this to be the baseline data (pre-test).

5.3 The sample received the nursing intervention utilizing a clinical nursing practice guideline among stroke patients with dysphagia.

5.3.1 The sample was assessed for readiness before starting swallowing training.

5.3.2 The sample was trained for saliva swallowing for ten minutes and exercised the swallowing muscles for five minutes. The procedure was conducted about 1 hour before meals.

5.3.3 About 45 minutes after the swallowing training and exercise of the swallowing muscles, the investigator prepared the sample to sit upright close to 90 degree, with the trunk in neutral and the head slightly flexed, and adjusted the environment and created a quiet and calm atmosphere to decrease distraction. Oral hygiene care was done before meals, and soft and slightly chewable food was provided. The sample had fed a half to one teaspoon per bite and food was placed on the stronger side of the tongue. The sample was given time to swallow, and not rushed. Minimum conversation was allowed while the sample swallowed and oral hygiene care was done after the meal.

5.3.4 The sample was trained to swallow saliva and exercise the swallowing muscles for 15 minutes, at least one hour before every meal till the sample finished 8 meals.

5.3.5 The sample was observed for swallowing difficulty utilizing a swallowing assessment observation form while eating in every meal after they received the nursing intervention (post-test).

The summary of the procedures in data collection with duration of time used in each step are described in Table 1 page 45.

Protection of the Human Subjects

The investigator was aware of ethics in research and the use of collected data, so that the investigator was convinced of the dignity, value of the patients and its impact that may occur to the patients. The investigator already had been permitted by

the Ethics Committee of the Prasat Neurological Institute to collect data. Before being asking patients to participate in the study, all patients were informed about the aims and the study procedures. The patients could refuse to join this study at any time without any effect on the treatment and nursing care that the patients received.

Data Analysis

1. Frequency and percentage were used to describe the demographic and clinical characteristics data.
2. Mean and standard deviation were used with the scores of the Barthel Index and the swallowing difficulty.
3. Wilcoxon Signed-Ranks Test was used to analyze differences in ranks of swallowing difficulty scores before and after nursing intervention.

CHAPTER IV

RESULTS

The purpose of this study was to study the effects of nursing intervention utilizing a clinical nursing practice guideline among stroke patients with dysphagia. This study was to compare the effects of swallowing difficulty of the patients before and after receiving nursing intervention. This study showed several interesting results which were presents as follows:

- Part 1 Demographic characteristics of the patients.
- Part 2 Clinical characteristics of the patients.
- Part 3 A clinical assessment of swallowing and physical functions of the patients.
- Part 4 The comparison of the effect on swallowing difficulty before and after nursing intervention utilizing a clinical nursing practice guideline.

Part 1 Demographic characteristics of the patients.

The patients in this study, were 70% male; 60% between 41-60 years of age; and 90% of them were married. In regard to education, 60% graduated from primary school. In regard to occupation, 50% were wage worker (Table 2).

Table 2 Number and percentage of demographic characteristics of the patients (n = 10).

Characteristics	Number	Percent
Gender		
Male	7	70
Female	3	30
Age (year)		
20-40	1	10
41-60	6	60
More than 60	3	30
(Mean = 56.2, S.D. = 16.28)		
Marital status		
Married	9	90
Single	1	10
Educational level		
Primary school	6	60
Secondary school	3	30
No education	1	10
Occupation		
Wage worker	5	50
Housework	4	40
Business	1	10

Part 2 Clinical characteristics of the patients.

It was showed that the patients were diagnosed with ischemic stroke (30%), cerebral infarction (30%), brainstem infarction (30%). In regard to underlying disease, were 30% diabetes mellitus, hypertension and hyperlipidemia.

In regard to disability, 50% of the patients were left hemiplegia. Regarding to Glasgow Coma Score, 60% of the patients had score of 15 (Table 3).

Table 3 Number and percentage of clinical characteristics of the patients (n=10)

Clinical Characteristics	Number	Percent
Diagnosis		
ischemic stroke	3	30
embolic stroke	1	10
cerebral infarction	3	30
brainstem infarction	3	30
Underlying disease		
Diabetes Mellitus	1	10
Hypertension	1	10
Cardio vascular disease	1	10
Diabetes Mellitus, Hypertension	1	10
Diabetes Mellitus, Hypertension, Hyperlipidemia	3	30
Hypertension, Hyperlipidemia	2	20
Hypertension, Cardio vascular disease	1	10
Disability		
Right hemiplegia	4	40
Left hemiplegia	5	50
Quadriplegia	1	10
Glasgow Coma Scores		
15	6	60
11	4	40

Part 3 A clinical assessment of swallowing and physical functions of the patients.

1. A clinical assessment of swallowing

It was showed that most of the patients had normal gag reflex, 90% had an abnormal of coughing and phonation, 80% had weakness of tongue, 70% had weakness of mandibles, 60% had weakness of lips closure and 50% had decreased in

swallowing reflex. In regard to facial symmetry, 70% of the patients had left facial palsy (Table 4).

Table 4 Number and percentage of a clinical assessment of swallowing of the patients (n = 10).

A clinical assessment of swallowing	Number	Percent
Gag reflex		
Normal	10	100
Decrease/Absent	0	0
swallowing reflex		
Normal	5	50
Delay/Absent	5	50
Cough reflex		
Normal	1	10
Abnormal	9	90
Phonation		
Normal	1	10
Abnormal	9	90
Facial symmetry		
Left facial palsy	7	70
Right facial palsy	2	20
Normal	1	10
Strengthening of tongue		
Normal	2	20
Weakness	8	80
Lips closure		
Normal	4	40
Weakness	6	60
Strengthening of mandibles		
Normal	3	30
Weakness	7	70

2. Physical functions of the patients (using Barthel Index)

It was showed that, the score of physical functions (using Barthel Index) of the patients were ranging from 10 to 90, mean of the scores were 33.0 (S.D. = 30.66) (Table 5).

Table 5 Scores of physical functions (Barthel Index) of the patients (n = 10).

Patient	Score of physical functions (Barthel Index)
Case 1	10
Case 2	20
Case 3	20
Case 4	80
Case 5	55
Case 6	25
Case 7	10
Case 8	90
Case 9	10
Case 10	10
Mean	33.0
S.D.	30.66

3. Level of the ability in physical functions of the patients.

The level of the ability in physical functions of the patients was divided into 4 levels. In this study, it was showed that, 60% of the patients were in the very severely level (Table 6).

Table 6 Number and percentage of level of physical functions of the patients (n = 10).

Level of ability	Number	Percent
0-20 (Very Severely disable)	6	60
25-45 (Severely disable)	1	10
50-70 (Moderately disable)	1	10
75-90 (Mildly disable)	2	20

4. Comparison of the scores between the ability in physical functions (Barthel Index) and swallowing difficulty of the patients.

It was showed that, 60% of the patients had score of the ability in physical functions (Barthel Index) in level of very severely (0-20), would have the score of swallowing difficulty ranging from 4 to 6 (Table 7).

Table 7 Comparison of the scores between the ability in physical functions (Barthel Index) and swallowing difficulty of the patients (n = 10).

Patient	Score of the ability in physical functions (Barthel Index)	Score of the swallowing difficulty (Pre-test)
Case 1	10	4
Case 2	20	6
Case 3	20	5
Case 4	80	4
Case 5	55	4
Case 6	25	4
Case 7	10	4
Case 8	90	3
Case 9	10	4
Case 10	10	4

Part 4 The comparison of the effects on swallowing difficulty before and after nursing intervention utilizing a clinical nursing practice guideline among stroke patients with dysphagia.

Score of swallowing difficulty of the patients before nursing intervention was showed that a score of swallowing difficulty ranging from 3 – 6, and found that most of the patients had coughing while swallowing (Table 8).

Table 8 A score of swallowing difficulty before nursing intervention (first meal) of the patients (n = 10).

Items of swallowing difficulty	Case									
	1	2	3	4	5	6	7	8	9	10
1. Aspiration while swallowing	1	1	1	1	1	1	1	1	0	1
2. Coughing while swallowing	1	1	1	1	1	1	1	1	1	1
3. Choking or breathlessness after swallowing	0	1	0	0	0	0	0	0	0	0
4. Wet or gurgly voice after swallowing	1	1	0	1	0	1	0	0	0	1
5. Feeling stuck of food in throat after swallowing	0	1	1	1	1	0	1	1	1	1
6. Pocketing of food residue in mouth	0	0	1	0	0	0	0	0	1	0
7. Leakage of food or water from mouth while swallowing	1	1	1	0	1	1	1	0	1	0
Total	4	6	5	4	4	4	4	3	4	4

Effects of the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing was found that score of the swallowing difficulty before implementation of nursing intervention was ranging between 3 to 6 points, and score was decrease after implementation of nursing intervention since the second meal to the ninth meal. On the first meal, mean decreased from 4.30 (S.D. = 0.82) to 0.00 (S.D. = 0.00) on the ninth meal (Table 9).

Table 9 Comparison of a score, mean and standard deviation of the swallowing difficulty before (first meal) and after nursing intervention (second to ninth meal) (n = 10).

Patient/meal	Score of swallowing difficulty (nine meals)								
	1	2	3	4	5	6	7	8	9
Case 1	4	4	3	2	2	1	0	0	0
Case 2	6	4	3	3	2	2	2	1	0
Case 3	5	3	3	2	2	2	1	0	0
Case 4	4	3	3	3	2	2	2	0	0
Case 5	4	4	3	2	2	2	1	0	0
Case 6	4	3	3	3	2	1	0	0	0
Case 7	4	3	3	3	2	2	2	0	0
Case 8	3	2	2	2	2	1	0	0	0
Case 9	4	4	4	4	3	2	1	0	0
Case 10	4	3	3	3	3	2	1	0	0
Lowest score	3	2	2	2	2	2	1	0	0
Highest score	6	4	4	4	3	2	2	1	0
Mean	4.30	3.40	3.10	2.80	2.30	1.70	1.00	0.10	0.00
S.D.	0.82	0.69	0.56	0.78	0.48	0.48	0.81	0.31	0.00

Mean score of the swallowing difficulty before implementation of a nursing intervention was 4.30 (S.D. = 0.82) and this significantly decreased since the second meal to 0.00 (S.D. = 0.00) on the ninth meal after implementation of nursing intervention (P-value = 0.004) (Table 10).

Table 10 Comparison of mean scores of swallowing difficulty between pre nursing intervention and post nursing intervention utilizing two-related-samples Wilcoxon Signed-Ranks Test (2-tailed).

Score of swallowing difficulty	Mean	S.D.	Mean Rank	Sum of Ranks	P-value
1 st meal	4.30	0.82	4.00	28.00	.014
2 nd meal	3.40	0.67			
1 st meal	4.30	0.82	5.00	45.00	.005
3 rd meal	3.10	0.57			
1 st meal	4.30	0.82	5.00	45.00	.007
4 th meal	2.80	0.79			
1 st meal	4.30	0.82	5.50	55.00	.004
5 th meal	2.30	0.48			
1 st meal	4.30	0.82	5.50	55.00	.004
6 th meal	1.70	0.48			
1 st meal	4.30	0.82	5.50	55.00	.004
7 th meal	1.00	0.82			
1 st meal	4.30	0.82	5.50	55.00	.004
8 th meal	0.10	0.32			
1 st meal	4.30	0.82	5.50	55.00	.004
9 th meal	0.00	0.00			

The average amount of rice porridge that the patients took each meal after implementation of nursing intervention increase from 90 ml in the second meal to 275 ml in the ninth meal, the average time required of each meal decreased and the eating rate increased right after the nursing intervention (4.50 ml/min to 14.86 ml/min).

Table 11 Comparison of the amount of rice porridge that the patients took each meal, the time required and eating rate for each meal (n = 10).

Meal	Amount of rice porridge (ml)	Time required for each meal (min)	Eating rate (ml / min)
1	65.5	19.00	3.45
2	90	20.00	4.50
3	114	19.50	5.80
4	140	24.50	5.71
5	163	24.50	6.65
6	210	23.00	9.13
7	250	22.50	11.11
8	255	20.00	12.75
9	275	18.50	14.86

CHAPTER V

DISCUSSION

This was a pre and post-test study of the effects of nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia. The patients were 10 stroke patients with dysphagia admitted in the Neuromedical wards in the Prasat Neurological Institute. The investigator discussed the results of this study as follows:

Part 1 Demographic and clinical characteristics of the patients.

Part 2 Effects of the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia.

Part 3 Feasibility of nursing intervention utilizing a clinical nursing practice guideline.

Part 1 Demographic and Clinical Characteristics of the Patients.

The patients in this study were 70% male. This finding is related to the previous studies which were reported that the incidence of stroke was more common in males than females (Ekberg, et al., 2002; Han, Paik, N-H. & Park, 2001: 678; Jacobsson, et al., 1997: 27; Meng N-H, Wang T-G & Lien I-N, 2000: 171; Smith, Lee & O'neill, 2000: 496). The result of this study also showed that the majority of the patients were aged between 41 and 60 years old with a mean of 56.2 (Table 2). Although the result of this study was different from most of the previous studies which found that the incidence of stroke was usually found in the elderly or those aged more than 65 years old (Travers, 1999). But this result supported the prior study of Ertekin, C. and colleagues (2000) which found that the average age of the patients was 56.3 and this is congruent with to Goldstein, Adams, Becker, and colleagues (2001) who reported that stroke commonly begin at age 55 years, and the rate of stroke incidence

doubles every decade. As it seen that the decreasing of the average age of the stroke patients found in this study maybe the warning sign that stroke should be prevented as early as 55 years old.

Diagnoses of the patients in this study were ischemic stroke, cerebral infarction and brainstem infarction (30% equally), which were the type of stroke that occurred from the occlusion of the cerebral arteries from cerebral thrombosis or cerebral embolism (Punthumjinda, K. 1987). Nipon Puangwarin (2000), studied the incidence of stroke in Thailand, and found that 70% of stroke patients had thrombotic or embolic stroke. The result of this study supported the prior studies which found that most of the patients had infarction more than hemorrhage (Han, Paik & Park, 2001: 678; Mayo, et al., 2002: 1038; Meng N-H, Wang T-G & Lien I-N, 2000: 173; Westergren, Ohlsson & Hallberg, 2001: 421). Furthermore, Barker (1994: 475) stated that a thrombotic event was responsible for about 75 percent of cerebrovascular disease.

In this study, it was found that 30% of the patients had underlying diseases, such as diabetes mellitus, hypertension and hyperlipidemia (Table 3) which were risk factors leading to stroke. Hyperlipidemia, have been shown to increase the risk of stroke by 1.8 to 2.6 fold and can cause stroke even in very young people; diabetes increases stroke risk 1.8 to 6 fold and hypertension greatly increases the risk of suffering a stroke 2 to 4 fold (Goldstein, Adams, Becker, et al., 2001; McCaffrey, 2001). This result was congruent with the previous studies, which showed that hypertension and diabetes mellitus were the most risk factors of atherosclerosis of cerebral vessels by stimulating arterioma production, leading to cerebral thrombosis (Mayo, et al., 2002: 1038; Nakara, P. 1999: 2).

It was also found that the majority of the patients were left hemiplegia (50%) which is consistent with the results of the prior studies which found that most of the patients had left hemiplegia (Kopachon C. 2002: 61; Perkdetch B. 2002: 58; Saengboon, K. 2002: 59). In this study it was also found that 40% of the patients had right hemiplegia. Usually the stroke patient with left hemiplegia was the result of the right hemisphere (non-dominant) lesion, and right hemiplegia was the result of the left hemisphere (dominant) lesion. A person is likely to become almost totally demented because of lost function in Wernicke's speech comprehension area in the left

hemisphere, and unable to speak words because of loss of Broca's motor area for word formation (Guyton & Hall, 2000: 711).

The pathology of stroke, can lead to movement disorder of the trunk and extremities (Black & Matassarin-Jacobs, 1993), which impacts on ability in physical functions. The result of the assessment of ability in physical functions (using the Barthel Index), found that most of the patients had scores ranging from 0 - 20 (60%) and mean scores were 33.0 (S.D. = 30.66) (Table 5 and 6). These mean that most of the patients depended on others in doing activities together with feeding. Dysphagia in these patients is usually associated with hemiplegia due to lesions of the brainstem or the involvement of one or both hemispheres (Bakheit, 2001: 695). John Ellul and colleagues (2002) stated that, dysphagia occurred in the initial phase of all kinds of stroke together with stroke with unilateral hemisphere.

When a comparison was made between the score for ability in physical functions (Barthel Index) and the score for swallowing difficulty, it was found that most of the patients (60%) had scores in the very severely disabled (0–20) range and would have a score of swallowing difficulty ranging from 4 to 6 points. These score showed that the patients had a swallowing difficulty (Table 7). Accordingly to the study of Nakajoh and colleagues (2000), it was found that the score of the Barthel Index was highest in oral feeding without dysphagia (Mean = 72.7 ± 5.1 , $p < .001$) and it was higher in oral feeding with dysphagia (Mean = 25.5 ± 3.5 , $p < .01$).

Regarding patients' swallowing ability, it was found that the patients had an abnormality of swallowing reflex (50%), coughing (90%), phonation (90%), facial symmetry (90%), tongue (80%), lips closure (60%) and mandible (70%) (Table 4). The occurrence of only one or two of these abnormalities could be the risk factors of aspiration for stroke patients (Uttawong, 1998: 7). These abnormalities caused the patients to have swallowing problems in the oropharyngeal phase. This result was congruent with Liwan Unnapiruk and colleagues (2000), who reported that dysphagia in stroke patients was upper dysphagia or oropharyngeal dysphagia, which occurred from the disorder of the nervous system and striated muscles of the mouth, neck and upper esophageal sphincter is associated with the disorder of the swallowing center and cranial nerves 5, 7, 9, 10 and 12. According to the study of Daniels and colleagues (1997: 20), it was found that most of the acute stroke patients presented oropharyngeal

dysphagia of varying severity. Clinical features which were significantly predictive of dysphagia severity: dysphonia, dysarthria, abnormal volitional cough ($p < .05$). The results of this study demonstrate that this clinical assessment has utility in the evaluation of acute stroke patients with probable dysphagia who may be at risk for aspiration.

All of the patients in this study showed a normal gag reflex and the staff neurologists had prescribed them for oral feeding. However, the above clinical features in regard to their swallowing abilities indicated that they were still at risk for unsafe swallowing which might lead them to aspiration. For this reason, it can be considered that “normal gag reflex” might not be a suitable sign to ensure that patients are free from unsafe swallowing. On the other hand, nurses should be aware of other swallowing abilities before the oral feeding started.

The baseline data with regard to swallowing difficulty showed that patients had aspirated, leaked food or liquid from the mouth while swallowing and had coughing, wet or gurgly voice, felt the food stuck in the throat, and pocketed residue in a cheek after swallowing. All these characteristics were signs which indicated unsafe swallowing. From the swallowing assessment at the first meal, the score of swallowing difficulty ranging from 3 to 6 point (Mean = 4.30, S.D. = 0.82) (Table 9).

Dysphagia in this type occurs in the oral preparatory phase, oral phase and pharyngeal phase. The patients in this study had a problem in mastication, weakness of orofacial muscles and jaws, movement disorder and weakness of tongue which made the food fall through the lateral area between cheek and jaws, and the disorder of swallowing reflex, according to the study of Zorowitz and colleagues (1999). Furthermore, Liwan Unnapiruk and colleagues (2000) reported that the patients felt that food stuck in the throat and they coughed during swallowing due to an incomplete closure of the soft palate and/or epiglottis or incomplete closure of the larynx. In severe cases, they could not swallow their own salivary secretions, which always occurred together with aphasia. These problems were impacted on the body image, social and psychological aspects of the patients. According to the study of Ekberg and colleagues (2002), it was stated that more than half of all study respondents stated that their dysphagia made their life less enjoyable and also had a negative impact on social

and psychological functioning and it reduced quality of life. For these reasons, the patients should receive appropriate management on dysphagia.

The observation for swallowing difficulty utilizing a swallowing assessment observation form on the first meal of the patients, found that most of the patients had coughing after swallowing liquid (Table 8) because a thin liquid especially water splashed into the pharynx before the swallowing mechanism was triggered (Kayser-Jones & Pengilly, 1999: 79). The difficulty in controlling the volume of liquid made the liquid flow into the air way and that the cause of aspiration (Travers, 1999). Furthermore, Galvan (2001) and Jacobsson and colleagues (1997) stated that environment, sound, talking and laughing while eating made the patients with dysphagia not concentrate on eating because they could not tolerate distractions to their interest while eating, and that increase the risk of aspiration (Killen, 1996: 104). This result appears consistent with the finding of Horner, Brazer and Massey (1993: 43), who studied about aspiration in bilateral stroke patients, and found that most of the patients (71%) aspirated and an abnormal voluntary cough ($p = 0.0001$) was significantly associated with aspiration.

Decreasing in sensation of the weaker side of the mouth and tongue made the patients unable to control the tongue to propel food in the oral cavity so that caused the residue pocketing in the weaker side of the cheek. Facial palsy made the tongue and lips unable to control food and liquid which caused the leakage of food and liquid from the mouth (Travers, 1999). Wet or gurgly voice after swallowing, suggested the presence of material on the vocal fold which was a risk of aspiration (Killen, 1996; Shanley & O'Loughlin, 2000).

Part 2 Effects of Nursing Intervention Utilizing a Clinical Nursing Practice Guideline on Safe Swallowing.

This study was a quasi-experimental, one group pre and post-test, and the samples were the stroke patients with dysphagia who had a readiness for swallowing and had the Glasgow Coma Scores more than 11 points. The observation of

swallowing difficulty should be done before and after the patients received nursing intervention utilizing a clinical nursing practice guideline on safe swallowing.

The clinical nursing practice guideline on safe swallowing consisted of 1) swallowing training 2) exercise of the swallowing muscles and 3) nursing intervention for safe swallowing such as positioning, environment adjustment, provision of appropriate food and oral hygiene care before and after meals.

The effects of nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia found that after receiving the nursing intervention utilizing a clinical nursing practice guideline, the score of swallowing difficulty significantly decreased (Mean = 0.00, S.D. = 0.00, P-value = .004) (Table 10). So it was found that after the patients received the nursing intervention utilizing a clinical nursing practice guideline, there was no aspiration, leakage of food or liquid from the mouth while swallowing, and there was no coughing, choking or breathlessness, wet voice, sticking of food in throat and pocketing of food after swallowing, so it means that the patients could obtain safe swallowing.

The effects of safe swallowing due to swallowing training: patients were trained to swallow their own saliva. Patients were asked to take a breath and hold it, flex the head to hold the chin tightly to the chest, swallow the saliva, then lift the chin up and breathe out. This swallowing was close to swallowing normally, but this swallowing training helped to promote safe swallowing, and helped to prevent aspiration by helping to close the vocal folds before and after swallowing. Asking the patients to tip the chin down, in order to certain that, it was a safe way for food to move through the esophagus (Killen, 1996; Terrado, et al., 2002). Using the nursing intervention while swallowing, the investigator managed the patients to swallow correctly, which they could do and they cooperated well. In conclusion the swallowing training made the patients able to swallow better and not aspirate while swallowing.

The exercise of the swallowing muscles was to control the orofacial muscles which would help to increase the strength and movement of the swallowing muscles (Miller & Langmore, 1994). The exercise of the facial muscles, lips and tongue would help to improve lips closure, mastication and movement of the tongue (Bakheit, 2002). According to Uschara Daechaboon (2000), it was stated that, the patients who had

weakness of facial, mastication and swallowing muscles, must receive therapeutic/training in order to increase strengthen, endurance, control and order of the orofacial muscles. It was found in this study, that after the exercise of swallowing muscles, the patients had much ability in better movement of the tongue and could also control the lips better. So that the patients did not have leakage of food or fluid from the mouth, did not have food pocketing in the mouth, and could swallow better.

The nursing intervention for promoting swallowing safely consisted of positioning the patients to sit upright close to 90 degree, with head slightly flexed, trunk in neutral and provided a suitable environment and created a quiet calm and desirable atmosphere, keeping conversation to minimum (Jacobsson, et al., 1997; Westergren, Ohlsson & Hallberg, 2001). In this study there was no problem in positioning management because the patients were assessed for readiness before receiving the nursing intervention. The readiness was that the patient should be awake and alert, or respond to speech and had Glasgow Coma Scores more than 11 points and be able to be positioned upright, with some head control. But there was a problem which was out of the investigator's control. It was the environment adjustment and creation of a quiet and calm atmosphere, which was really difficult to do, because the patients were admitted in combined ward, and also had cousins and other patients. It made the patients with dysphagia not concentrate in eating and leading to coughing while swallowing. So the investigator should have increased caution for the patients.

In the management of the environment adjustment, the investigator had seen the importance of the coordination of patients, relatives and other associated people. This was an important matter for the successful implementation of the nursing intervention utilizing a nursing practice guideline (Craig & Smyth, 2002). So the investigator solved the problem by asking for cooperation from the patients, relatives and other associated people and received better cooperation that made the patient have more concentration while eating.

In this study the investigator provided rice porridge as a diet for the patients at every meal, because rice porridge had accuracy in concentration and viscosity. Kayser-Jones and Pengilly (1999) stated that the patients with dysphagia should be fed with soft, slightly chewable food, which sometimes is preferable to pureed food. The patients were fed with a small bite; a half to one teaspoon per bite and food was placed

on the unaffected side of their tongue that allowed them to sense where the food was and decreased the likelihood of aspiration. Liquid was sipped in an amount of three to fifteen milliliters. The investigator found that, providing this diet for patients in this study, made the patients able to use tongue and lips better in controlling the food. As it seen in this study that the amount of food was increased while the period of time the patients required in eating each meal was decreased (Table 11). It was shown that the patients had a confident and could perform better in swallowing and eating, and no one aspirated during the meal.

Part 3 Feasibility of Nursing Intervention Utilizing a Clinical Nursing Practice Guideline

The feasibility of nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia, is considered as follows:

1. **Patient aspect:** nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia, was developed by the investigator, and was a nursing intervention directly for the patients with dysphagia to increase their ability to swallow safely. The procedure was not complex, and there was no need to use special equipment and was not dangerous for the patients. Both the patients and family had seen the effects of the nursing intervention, such as the patients had swallowed safely and did not suffer from retaining the nasogastric tube, and they were also satisfied in receiving close nursing care. Furthermore, the family/caregivers received suggestions and explanations until they understood about management for safe swallowing and them ability to do correctly. As was seen, the coordination of the patients and family in utilizing the clinical nursing practice guideline should improve the clinical nursing practice guideline's effectiveness (Regan, 1998).

2. **Nurse aspect:** Nurses, who worked in Neuromedical wards in which the investigator implemented the clinical nursing practice guideline, were aware of the

significance of swallowing difficulty among stroke patients, but they did not have accurate management on safe swallowing and had no formal swallowing assessments. So that when they observed the nursing intervention of the investigator, starting from the clarification of the swallowing assessment and the procedure of the nursing practice guideline step by step until the patients ability to swallowing safely, they were interested and encouraged in utilizing the clinical nursing practice guideline to integrate it into practice. This is consistent with hospital quality improvement policy and nursing working groups which emphasize nursing standards for patients (Nursing Division, Ministry of Health, 2001: 101).

Therefore they cooperated in this study and were interested in carrying out the clinical nursing practice guideline into nursing practice due to its effectiveness in this study.

3. Aspects of other personnel such as the physicians who had seen the patients, who suffered from swallowing difficulty and after receiving nursing intervention, were able to swallow safely without aspiration and complications. The patients not only improved in physical health status but also improved in psychological health status. Also the patients and family were satisfied with the health care service. This made the physician agree with utilizing the clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia.

The conclusions of the feasibility of using a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia implemented in a real situation. The investigator found that it encouraged the participation of stakeholders throughout the various steps of utilizing the clinical nursing practice guideline. The results of the pilot study enhanced stakeholder confidence in the effectiveness of the change and the feasibility of making the change (Rosswurm & Larrabee, 1999: 321). Regarding clinical nursing practice guideline, practitioners and patients are able to access and use documents that synthesize and evaluate the available scientific evidence related to health conditions or procedures (Beyea & Nicoll, 1998), which resulted in satisfaction in utilizing the clinical nursing practice guideline.

CHAPTER VI

CONCLUSION

Summary of the Study

This study was a quasi-experimental, one group pre and post-test design, aimed at evaluating the effects of the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia. The study was conducted for a two month period (March to April 2003) at Prasat Neurological Institute. The instruments for collecting data were demographic and clinical characteristics of the patients, the assessment form of the physical functions of the patients (Barthel Index) (Reliability = 0.96), a swallowing assessment observation form (Reliability = 0.63). The samples in this study were 10 stroke patients with dysphagia, and they were selected using inclusion criteria.

The nursing intervention utilizing a clinical nursing practice guideline and data collecting was performed by the investigator. The patients, who had met the inclusion criteria, received the assessment of swallowing difficulty while the patient had their first meal in order to collect the baseline data. And the patients received the assessment of swallowing difficulty after the investigator implemented the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing for eight meals. The investigator analyzed the data as follows: frequency was used to describe the demographic and clinical characteristics, mean and standard deviation were used for the scores of the Barthel Index and swallowing difficulty, and the Wilcoxon Signed-Ranks Test was used to analyze differences of swallowing difficulty before and after implementing the nursing intervention utilizing a clinical nursing practice guideline.

The results from this study showed that, the stroke patients with dysphagia were more males than females (7:3), aged between 41–60 years of age (60%), had marriage status (90%), graduated from primary school (60%) and were employees

(50%). The diagnosis of the patients was ischemic stroke (30%), cerebral infarction (30%) and brain stem infarction (30%) and most of the patients had underlying diseases such as diabetes mellitus, hypertension and hyperlipidemia (30%). The patients in this study were left hemiplegia (50%), right hemiplegia (40%) and quadriplegia (10%). Most of the patients had scores of physical functions (Barthel Index) in the level of very severely disabled (0 - 20) and had Glasgow Coma Scores higher than 11.

After receiving the nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia, the results showed that all 10 of the stroke patients included in this study had safe swallowing. It showed that the differences of swallowing difficulty before and after nursing intervention significantly decreased (pre-test, Mean = 4.30, S.D. = 0.82 and post-test, Mean = 0.00, S.D. = 0.00, P-value = .004).

Limitations for This Study

The sample size for this study was small; it may not be generalized to other groups of stroke patients with dysphagia. As the study was designed as a one group pre-post test, it had no control group with which to compare the effectiveness of the study. And the duration of the study was limited; although the patients had a swallowing difficulty score of 0 at the last meal of day three, the patients should be followed-up for at least 2 more days in order to make sure that the patients were still swallowing safely.

Implications for Nursing Practice

From this study, it was found that nursing intervention utilizing a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia, helped the patients to improve their ability in swallowing safely without aspiration and

complications thus the investigator had suggestions for the implementation of the clinical nursing practice guideline as follows:

1. The clinical nursing practice guideline on safe swallowing should be implemented into the part of the nursing care plan for stroke patients with dysphagia at the responsibility for stroke units. This performance should result in sustaining the nursing practice guideline. Therefore the procedures for sustaining the nursing practice guideline are suggested:

1.1 Present the result of the study to those responsible for the stroke patients' unit and practitioners in order that they be aware of the danger and impacts from swallowing difficulty among stroke patients. In addition to, they should sense the significance of utilizing a clinical nursing practice guideline on safe swallowing.

1.2 The clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia should be publicized to media such as journals, internet or conferences. It aims for health care practitioner to be able to use this clinical nursing practice guideline and to allow for change in knowledge and problems in using it. Personnel opinions about the implemented change should provide information about its acceptability or the need for modifications and development of the clinical nursing practice guideline efficiency.

1.3 Training programs for nurse in units associated with stroke patients should be provided in order to increase awareness of dysphagia among stroke patients. This training will help nurses to be able to utilize clinical nursing practice guideline correctly and with a standardized procedure.

1.4 A pattern of monitoring and evaluating outcomes from utilizing the clinical nursing practice guideline for continuing its development.

1.5 The effects of utilizing the clinical nursing practice guideline should be evaluated for a period, in order to adjust consistency with the nursing intervention of each unit.

2. The family and caregivers should be promoted to participate in utilizing the clinical nursing practice guideline by training the family or caregivers to participate in swallowing training, exercising the swallowing muscles and management of patients with dysphagia. Families could help to do this correctly after the patients return home and nurses should follow up the progress of swallowing for a period. Participation of

the family should be added to the clinical nursing practice guideline in order to gain the highest benefit and for the continuum of care.

Implication for Further Study

In a further study, the sample size should be larger in order that it may be generalized to other groups of stroke patients with dysphagia, and the design should have a control group for comparison between groups to achieve better results and effectiveness. Because of the limitation of time, this study was implemented for only three days for case, which is a short period for recovery of the swallowing muscles. In order that the effectiveness of recovery of the swallowing muscles is improved, the period for the study in each case should be longer than three days.

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APPENDIX

LIST OF EXPERTS

There are seven experts who have validated the content of instruments and a clinical nursing practice guideline on safe swallowing among stroke patients with dysphagia. There are:

1. Rungsan Chaisewikul, M.D.
Assistant Professor
Neurologist
Division of Medicine
Faculty of Medicine,
Mahidol University.
2. Arun Nurake, M.Ed.
Assistant Professor
Department of Surgical Nursing,
Faculty of Nursing,
Mahidol University.
3. Suporn Danaidutsadeekul, D.N.Sc.
Assistant Professor
Department of Surgical Nursing
Faculty of Nursing,
Mahidol University.
4. Wanpen Pichitpornchai, PhD. (Nursing)
Lecturer.
Department of Medical Nursing
Faculty of Nursing,
Mahidol University.
5. Uraiwan Taerunguang, M.N.S. (Adult Nursing)
Assistant Head Division of Surgical Nursing
Department of Surgical Nursing
Faculty of Medicine,
Mahidol University.
6. Supaluk Khemthong, M.Sc. (Physiology of Exercise)
Lecturer.
Faculty of Physical Therapy and Applied Movement Sciences Project,
Mahidol University.

7. Jittima Muensoongnoen, M.Sc. (Anatomy)

Lecturer.

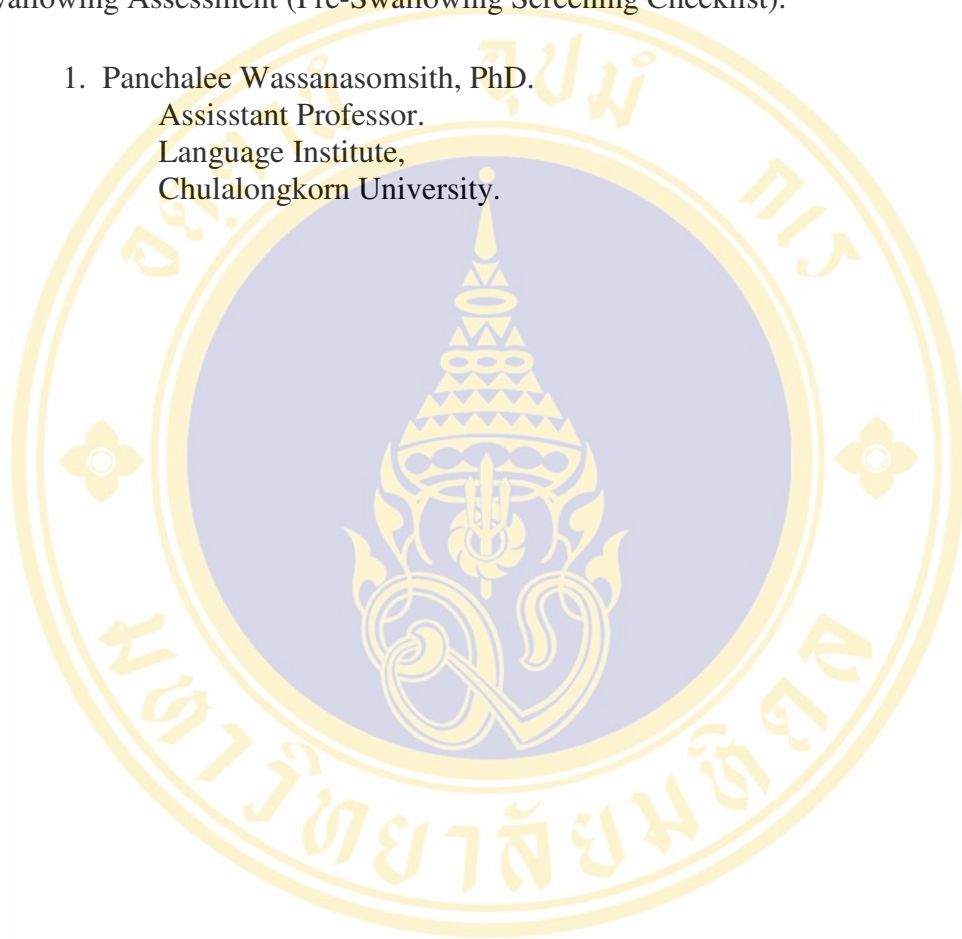
Faculty of Physical Therapy and Applied Movement Sciences Project,
Mahidol University.

There is one expert who has back translated the language of the Standardized Swallowing Assessment (Pre-Swallowing Screening Checklist).

1. Panchalee Wassanasomsith, PhD.

Assistant Professor.

Language Institute,
Chulalongkorn University.



APPENDIX

INFORMATION CONSENT FORM

คำชี้แจงสำหรับผู้ป่วยและการคุ้มครองสิทธิของผู้ป่วย

ดิฉันนางสาว ทิพย์สุดา ชำนาญศรีเพ็ชร นักศึกษาปริญญาโท คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ขณะนี้กำลังศึกษาเรื่อง “ผลของการพยาบาลตามแนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก” ซึ่งเป็นการศึกษาเกี่ยวกับการให้การพยาบาลตามแนวปฏิบัติการพยาบาลเพื่อให้ผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบากสามารถกลืนได้อย่างปลอดภัย ไม่เกิดภาวะแทรกซ้อน

ท่านเป็นผู้หนึ่งที่ดิฉันคิดว่าจะสามารถเข้าร่วมในการได้รับการพยาบาลตามแนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก และถ้าท่านยินดีที่จะเข้าร่วมการศึกษา ดิฉันขออนุญาตสอบถามท่านเกี่ยวกับสภาพอาการและความสามารถในการทำหน้าที่ของร่างกาย การประเมินการกลืน จากนั้นท่านจะได้รับการพยาบาลตามแนวปฏิบัติการพยาบาลตามที่กำหนดไว้อย่างต่อเนื่องเป็นเวลา 3 วัน

ดิฉันคาดว่า ผลการศึกษารั้งนี้จะเป็นประโยชน์โดยตรงแก่ตัวท่าน และสามารถนำไปเป็นวิธีการให้การพยาบาล เพื่อให้ผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก ได้รับความปลอดภัยในการกลืน

หากท่านมีข้อสงสัยใดๆ ที่เกี่ยวข้องกับการศึกษารั้งนี้ ดิฉันยินดีที่จะตอบให้เข้าใจและไม่ว่าท่านจะเข้าร่วมในการศึกษานี้หรือไม่ก็ตาม ท่านจะยังคงได้รับการรักษาพยาบาลจากเจ้าหน้าที่ของโรงพยาบาลตามปกติ ท่านมีสิทธิในการตอบรับการศึกษแล้ว ท่านยังคงมีสิทธิจะยกเลิกการเข้าร่วมการศึกษาหรือยุติการให้สัมภาษณ์ได้ตลอดเวลา ตามที่ท่านต้องการโดยไม่มีผลกระทบใดๆ

ขอขอบคุณทุกท่านที่ให้ความร่วมมือ

นางสาว ทิพย์สุดา ชำนาญศรีเพ็ชร

ข้าพเจ้าได้รับการอธิบายตามรายละเอียดข้างต้น และมีความยินดีที่จะเข้าร่วมการศึกษาต่อไป

(ลายมือชื่อผู้เข้าร่วมในการศึกษา)

วันที่.....

APPENDIX

Permission for Data Collecting



คำรับรองและอนุมัติให้ใช้สถานที่/หน่วยงานที่ดำเนินการวิจัย

ข้าพเจ้า.....แพทย์หญิงอภิรมย์ เวชญาติ.....ตำแหน่ง ผู้อำนวยการสถาบันประสาทวิทยา.....

อนุมัติให้.....นางสาวทิพย์สุตา ชำนาญศรีเพ็ชร.....ดำเนินโครงการวิจัย เรื่อง ผลของการพยาบาลตาม

แนวปฏิบัติการพยาบาลต่อการกระตุ้นอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืน

ลำบาก.....ในสถาบันประสาทวิทยา ได้ตั้งแต่ วันที่ 27 กุมภาพันธ์ 2546 จนถึงสิ้นสุดโครงการ

.....

(แพทย์หญิงอภิรมย์ เวชญาติ)

ผู้อำนวยการสถาบันประสาทวิทยา

Permission for Data Collecting



บันทึกข้อความ

ส่วนราชการ กลุ่มวิจัยและพัฒนา โพร. 2003

ที่ _____ วันที่ 3 มีนาคม 2546

เรื่อง ขอความอนุเคราะห์ในการดำเนินโครงการวิจัย

เรียน ผู้อำนวยการศูนย์พัฒนาระบบสุขภาพ

เนื่องด้วย คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ได้ขอความร่วมมือมายังสถาบันประสาทวิทยา เพื่อขออนุมัติให้ นางสาวทิพย์สุดา ชำนาญศรีเพ็ชร ดำเนินโครงการวิจัย เรื่อง ผลของการพยาบาลตามแนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก ซึ่งคณะอนุกรรมการวิจัย ภายใต้คณะกรรมการวิชาการ สถาบันประสาทวิทยา ได้พิจารณาอนุมัติในแง่จริยธรรมให้ดำเนินการวิจัยภายในสถาบันเรียบร้อยแล้ว เมื่อวันที่ 27 กุมภาพันธ์ 2546 ในการนี้กลุ่มวิจัยและพัฒนาจึงใคร่ขอความกรุณาจากหน่วยงานของท่าน เพื่อโปรดอนุเคราะห์การดำเนินการวิจัยให้แก่ผู้วิจัยดังกล่าวข้างต้น

จึงเรียนมาเพื่อโปรดพิจารณาและดำเนินการต่อไป จะเป็นพระคุณยิ่ง


 (นายแพทย์สุชาติ หาญไชยพิบูลย์กุล)
 หัวหน้ากลุ่มวิจัยและพัฒนา


 1/1/2546
 3 มีนาคม 2546

APPENDIX

INSTRUMENTS

Form of Data Collection

แบบบันทึกข้อมูลในการศึกษา

ผลของการพยาบาลตามแนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยใน
ผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก

ผู้ป่วยรายที่.....

วันที่..... เดือน..... พ.ศ.....

คำแนะนำในการตอบแบบบันทึกข้อมูลในการศึกษา

1. แบบบันทึกข้อมูลในการศึกษานี้ประกอบด้วย 4 ชุด คือ

ชุดที่ 1 แบบบันทึกข้อมูลส่วนบุคคล

ชุดที่ 2 แบบบันทึกลักษณะทางคลินิกและความสามารถในการทำหน้าที่
ของร่างกายของผู้ป่วย

ชุดที่ 3 แนวปฏิบัติการพยาบาลสำหรับผู้ป่วยโรคหลอดเลือดสมองที่มี
การกลืนลำบาก

ชุดที่ 4 แบบประเมินการกลืน

2. กรุณาอ่านคำชี้แจงก่อนตอบแบบบันทึกข้อมูล

Part 1**Demographic Characteristics Questionnaire****ชุดที่ 1 แบบบันทึกข้อมูลส่วนบุคคล**

คำชี้แจง ให้ผู้สัมภาษณ์หรือผู้ประเมินทำเครื่องหมาย ✓ ลงใน [] หน้าข้อความที่เป็นคำตอบและเติมข้อความที่ตรงกับความเป็นจริงลงในช่องว่างในคำตอบแต่ละข้อ

1. เพศ [] ชาย [] หญิง
2. อายุ ปี
3. สถานภาพสมรส
[] โสด [] คู่ [] หม้าย
☐ [] หย่า [] แยกกันอยู่
4. ระดับการศึกษา
[] ไม่ได้รับการศึกษา [] ประถมศึกษา
[] มัธยมศึกษา / ปวช. [] อนุปริญญา / ปวส.
[] ปริญญาตรี [] สูงกว่าปริญญาตรี
5. อาชีพ
[] รับราชการ [] รัฐวิสาหกิจ [] เกษตรกร
[] ค้าขาย / ธุรกิจ [] รับจ้าง [] นักเรียน
[] ว่างาน [] อื่นๆ(ระบุ).....

Part 2

The Clinical Assessment Package

ส่วนที่ 2 แบบประเมินลักษณะทางคลินิกและความสามารถในการทำหน้าที่ของร่างกายของผู้ป่วย
คำชี้แจง ให้ผู้ประเมินทำเครื่องหมาย ✓ ลงใน [] หน้าข้อความที่เป็นคำตอบ และเติมข้อความที่
ตรงกับความเป็นจริงลงในช่องว่างในคำตอบแต่ละข้อ

1. การวินิจฉัยโรค

- | | |
|--|--|
| ☐ Cerebral infarction | ☐ Cerebral hemorrhage |
| ☐ Cerebral embolism | ☐ Cerebral thrombosis |
| ☐ Subarachnoid hemorrhage | ☐ Intracerebral hemorrhage |
| ☐ Stroke in the young | ☐ Transient ischemic attack (TIA) |
| ☐ อื่น ๆ (ระบุ)..... | |

2. การวินิจฉัยโรคเดิม (underlying diseases)

- | | |
|--|--|
| ☐ Diabetes Mellitus | ☐ Hypertension |
| ☐ Hyperlipidemia | ☐ Cardio vascular disease |
| ☐ อื่นๆ ระบุ..... | |

3. การประเมินความบกพร่องในการเคลื่อนไหวของแขนขา

- | | |
|---|--|
| ☐ Right hemiplegia | ☐ Left hemiplegia |
| ☐ Paraplegia | ☐ Quadriplegia |

4. การประเมินระดับความรู้สึกตัว โดยประเมินจาก คะแนน Glasgow Coma Scale เมื่อแรกเริ่มเท่ากับ.....คะแนน

5. การประเมินทางคลินิกของการกลืน (clinical assessment of swallowing)

5.1 ประเมิน Gag reflex

- | | |
|-------------------------------|--|
| ☐ ปกติ | ☐ ผิดปกติ ระบุ..... |
|-------------------------------|--|

5.2 ประเมิน Swallowing reflex

- | | |
|-------------------------------|--|
| ☐ ปกติ | ☐ ผิดปกติ ระบุ..... |
|-------------------------------|--|

5.3 ประเมินการไอ ผู้ป่วยสามารถไอได้แรง

- | | |
|-------------------------------|--|
| ☐ ปกติ | ☐ ผิดปกติ ระบุ..... |
|-------------------------------|--|

5.4 ประเมินการเปลี่ยนเสียง

- ☐ ปกติ ☐ ผิดปกติ ระบุ.....
- 5.5 ประเมินความแข็งแรงและสมดุลของกล้ามเนื้อหน้า
- ☐ ปกติ ☐ ผิดปกติ ระบุ.....
- 5.6 ประเมินความแข็งแรงของลิ้น
- ☐ ปกติ ☐ ผิดปกติ ระบุ.....
- 5.7 ประเมินการปิดปาก
- ☐ ปกติ ☐ ผิดปกติ ระบุ.....
- 5.8 ประเมินความแข็งแรงของขากรรไกร
- ☐ ปกติ ☐ ผิดปกติ ระบุ.....
- 5.9 สรุปผู้ป่วย
- ☐ ไม่มีปัญหาการกลืนลำบาก
- ☐ มีปัญหาการกลืนลำบาก (มีความผิดปกติในข้อ 5.1-5.8 มากกว่า 2 ข้อ)
6. การประเมินความสามารถในการพึ่งพาตนเอง (ใช้เกณฑ์การประเมิน Barthel Index)
- 6.1 Feeding (รับประทานอาหารเมื่อเตรียมสำหรับไว้ให้เรียบร้อยต่อหน้า)
- ☐ ไม่สามารถดักอาหารเข้าปากได้ต้องมีคนป้อนให้
- ☐ ดักอาหารเองได้ แต่ต้องมีคนช่วย เช่น ช่วยใช้ช้อนตักเตรียมไว้ให้ หรือตัดให้เป็นชิ้นเล็กๆ ว่างหน้า
- ☐ ดักอาหารและช่วยตัวเองได้เป็นปกติ
- 6.2 Grooming (ล้างหน้า, แปรงฟัน, หวีผม, โกนหนวด ในระยะ 24-48 ชั่วโมงที่ผ่านมา)
- ☐ ต้องการความช่วยเหลือ
- ☐ ทำได้เอง (รวมทั้งที่ทำได้เองถ้าเตรียมอุปกรณ์ไว้ให้)
-
-
-
-
-
-
- 6.10 Bladder (การกลั้นปัสสาวะในระยะ 1 สัปดาห์ที่ผ่านมา)
- ☐ กลั้นไม่ได้ หรือใส่สายสวนปัสสาวะแต่ไม่สามารถดูแลเองได้
- ☐ กลั้นไม่ได้บางครั้ง (เป็นน้อยกว่าวันละ 1 ครั้ง)

Part 3

Clinical Nursing Practice Guideline for Stroke Patients with Dysphagia

แนวปฏิบัติการพยาบาลสำหรับผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก

คำชี้แจง : การให้การพยาบาลตามแนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก ผู้ปฏิบัติต้องปฏิบัติการพยาบาลให้ครบทุกขั้นตอนและประเมินผลการปฏิบัติภายหลังให้การพยาบาล

วัตถุประสงค์ (Purpose)

1. เพื่อเป็นแนวทางการประเมินผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก
2. เพื่อเป็นแนวทางการปฏิบัติการพยาบาลเพื่อการกลืนได้อย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก

ความหมายของการกลืนลำบาก (Definition of Dysphagia)

การกลืนลำบาก (dysphagia or swallowing difficulty) หมายถึง การมีความผิดปกติในการเคี้ยวและหรือการกลืน เป็นผลจากความผิดปกติในหน้าที่ของอวัยวะที่เกี่ยวข้องกับการกลืน คือ ริมฝีปาก แก้ม ลิ้น ขากรรไกร เพดานปาก กล่องเสียง คอ หลอดอาหารส่วนต้น และปฏิกิริยาตอบสนองต่อการกลืนลดลง (Killen, 1996)

ผู้ป่วยกลุ่มเสี่ยง (Patient at risk)

ผู้ป่วยโรคหลอดเลือดสมอง

เกณฑ์การรวบรวมข้อมูล (Assessment Criteria)

เกณฑ์การประเมินผู้ป่วย

1. ผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก
2. ผู้ป่วยต้องมีความพร้อมในการกลืน คือ ต้องรู้สึกตัวตื่น ทำตามทีบอกได้ (Glasgow Coma Score มากกว่า 11 คะแนน) สามารถทำตามทีบอกได้ สามารถควบคุมน้ำลายได้บ้าง สามารถใช้ลิ้นแตะริมฝีปากบนและล่างได้ หายใจได้เอง และไม่มีเสียงน้ำในคอ

ผู้ที่ได้รับประโยชน์จากการใช้แนวปฏิบัติการพยาบาลคือ

1. ผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก จะได้รับการประเมินและการปฏิบัติการพยาบาลเพื่อการกลืนอย่างปลอดภัย ไม่เกิดภาวะแทรกซ้อน
2. พยาบาลระดับปฏิบัติการ สามารถประเมินและให้การปฏิบัติการพยาบาลผู้ป่วยที่มีการกลืนลำบากได้อย่างมีประสิทธิภาพ และมีแนวทางการปฏิบัติงานที่เป็นมาตรฐานของหน่วยงาน
3. หน่วยงานจะได้รับประโยชน์จากการลดค่าใช้จ่ายในการรักษาพยาบาล จากการเกิดภาวะแทรกซ้อนจากการสำลัก

แนวปฏิบัติการพยาบาล

แนวปฏิบัติการพยาบาลต่อการกลืนอย่างปลอดภัยในผู้ป่วยโรคหลอดเลือดสมองที่มีการกลืนลำบาก แบ่งออกเป็น 3 ส่วน ดังนี้

ส่วนที่ 1 ประเมินผู้ป่วยโดยใช้เครื่องมือ Standardized Swallowing Assessment เพื่อ
ตัดสินใจอีกครั้งก่อนเริ่มฝึกการกลืนและเริ่มให้ผู้ป่วยกลืนอาหาร

คำชี้แจง : ให้ผู้ประเมินทำเครื่องหมาย ✓ ลงใน [] หน้าข้อความที่เป็นคำตอบที่ตรงกับความเป็นจริง

1. ผู้ป่วยรู้สึกตัวและตื่น หรือมีการตอบสนองต่อคำพูดใช่หรือไม่
[] ใช่ [] ไม่ใช่
2. ผู้ป่วยสามารถควบคุมศีรษะในท่านั่งตัวตรงได้ใช่หรือไม่
[] ใช่ [] ไม่ใช่
3. ผู้ป่วยสามารถที่จะไต่ตามที่บอกได้หรือไม่
[] ได้ [] ไม่ได้
4. ผู้ป่วยสามารถควบคุมน้ำลายของตนเองได้บ้างหรือไม่
[] ได้ [] ไม่ได้
5. ผู้ป่วยสามารถที่จะใช้ลิ้นเลียริมฝีปากบนและล่างได้หรือไม่
[] ได้ [] ไม่ได้
6. ผู้ป่วยสามารถหายใจได้เองหรือไม่
[] ได้ [] ไม่ได้
7. ผู้ป่วยพูดมีเสียงแหบหรือมีเสียงน้ำในคอหรือไม่
[] มี [] ไม่มี

เมื่อประเมินแล้ว คำตอบข้อ 1-6 ตอบว่า ใช่หรือได้ และข้อ 7 ตอบว่า ไม่มี แสดงว่าผู้ป่วยพร้อมที่จะกลืน จึงให้การพยาบาลในส่วนที่ 2 ต่อไป ถ้าคำตอบข้อ 1-6 ตอบว่า ไม่ใช่หรือไม่ได้ และ คำตอบข้อ 7 ตอบว่า มี แสดงว่าผู้ป่วยยังไม่พร้อมที่จะกลืน ไม่ต้องดำเนินการต่อในส่วนที่สอง ให้ปรึกษาแพทย์เพื่อพิจารณาให้ผู้ป่วยได้รับสารน้ำและสารอาหารทางสายให้อาหารหรือ ทางเส้นเลือด

ส่วนที่ 2 เมื่อผู้ป่วยผ่านการประเมินในส่วนที่ 1 แล้ว ให้การปฏิบัติการพยาบาลผู้ป่วยโดยการฝึกการกลืนและบริหารกล้ามเนื้อที่ใช้ในการกลืนก่อนที่จะเริ่มให้ผู้ป่วยรับประทานอาหาร อย่างน้อย 1 ชั่วโมง

1. ให้ผู้ป่วยฝึกการกลืน โดยใช้ swallowing techniques ดังนี้
 - ให้ผู้ป่วยหายใจเข้าช้าๆ แล้วกลืนหายใจไว้ ก้มหน้าคางชิดคอ กลืนน้ำลาย แล้วหายใจออกช้าๆ ให้ผู้ป่วยทำทุก 1 นาที ติดต่อกันเป็นเวลา 10 นาที
2. บริหารกล้ามเนื้อที่ใช้ในการกลืน
 - บริหารปาก ให้ผู้ป่วยทำปากจู๋ ฝึกยิ้ม อ้าปากให้กว้างและหุบปาก
 - บริหารลิ้น ให้ผู้ป่วยแฉกลิ้นออกมา ใช้ปลายลิ้นแตะริมฝีปากบน ล่าง และมุมปากทั้งสองข้าง
 - ให้ผู้ป่วยบริหารปากและลิ้นติดต่อกันเป็นเวลาอย่างน้อย 5 นาที

ส่วนที่ 3 หลังจากฝึกการกลืนและบริหารกล้ามเนื้อที่ใช้ในการกลืนแล้วอย่างน้อย 45 นาที ดูแลให้ผู้ป่วยรับประทานอาหาร ดังนี้

1. ดูแลความสะดวกในช่องปากและฟันก่อนรับประทานอาหาร
2. จัดท่า ให้ผู้ป่วยอยู่ในท่านั่งตรงประมาณ 90 องศา ลำตัวอยู่ตรงกลาง และจัดศีรษะให้เหมาะสม
 - ถ้าผู้ป่วยไอบรรยากาศรับประทานหรือกลืนได้ช้า ให้ผู้ป่วยโน้มศีรษะไปข้างหน้าเล็กน้อย
 - ถ้าผู้ป่วยควบคุมลิ้นได้ไม่ดีขณะรับประทาน ให้ผู้ป่วยเอนศีรษะไปด้านที่ไม่อ่อนแรงและไปข้างหลังเล็กน้อย
 - ถ้ามีอาหารค้างอยู่ในปาก ให้ผู้ป่วยเอียงศีรษะไปด้านที่ไม่อ่อนแรง พร้อมขยับลิ้นและริมฝีปาก

3. จัดสิ่งแวดล้อมและสร้างบรรยากาศให้เงียบสงบ ไม่มีเสียงรบกวน พุดคุยกับผู้ป่วยเท่าที่จำเป็น เช่น บอกให้อ้าปาก เคี้ยว และกลืน
4. การจัดอาหาร ลักษณะอาหารควรเริ่มจากอาหารเหลวข้น เช่น โจ๊ก อาหารนุ่มๆ จัดแบ่งเป็นชิ้นเล็กๆ และป้อนอาหารครึ่งช้อนชาต่อคำ ให้ออกเหลวครึ่งละประมาณ 3 ถึง 15 มล.
5. ให้ผู้ป่วยไอหลายๆครั้ง ถ้ามีเสียงน้ำในคอหลังกลืน เพื่อให้คอโล่งแล้วถึงรับประทานต่อ
6. การให้ผู้ป่วยรับประทานยา โดยวางยาในปากด้านที่มีแรง ให้ผู้ป่วยรับประทานยาทีละเม็ด
7. ให้เวลาผู้ป่วยในการกลืน ไม่เร่งรัดผู้ป่วย และให้กำลังใจผู้ป่วย
8. ดูแลความสะอาดปากและฟันหลังรับประทานอาหาร
9. ถ้าผู้ป่วยใช้เวลาในการรับประทานอาหารนานเกินกว่า 45 ถึง 60 นาที จะทำให้กล้ามเนื้อที่ใช้ในการเคี้ยวและกลืนอ่อนแรง ซึ่งจะทำให้ผู้ป่วยมีโอกาสเสี่ยงต่อการสำลักได้ง่าย ให้แบ่งมื้ออาหารออกเป็น 5-6 มื้อต่อวัน

Part 4**A Swallowing Assessment Observation Form****ส่วนที่ 4 แบบประเมินการกลืน**

คำชี้แจง : ให้ผู้ประเมินทำเครื่องหมาย ✓ ลงใน [] หน้าข้อความที่เป็นคำตอบที่ตรงกับที่สังเกตได้จริง ในระหว่างที่ผู้ป่วยรับประทานอาหาร เพื่อประเมินว่าผู้ป่วยกลืนได้อย่างปลอดภัย ไม่เกิดการสำลัก

1. ผู้ป่วยมีอาการสำลักขณะกลืนอาหาร

[] มี

[] ไม่มี

2. ผู้ป่วยมีอาการไอทันทีหลังกลืน

[] มี

[] ไม่มี

7. ผู้ป่วยมีน้ำหรืออาหารไหลออกจากปากขณะกลืน

[] มี

[] ไม่มี

BIOGRAPHY

NAME	Miss.Thipsuda Chamnansripetch
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PLACE OF BIRTH	Bangkok, Thailand
INSTITUTIONS ATTENDED	Mahidol University, 1982-1984: Bachelor of Nursing Mahidol University, 2001-2003: Master of Nursing Science (Adult Nursing)
POSITION&OFFICE	1977 – Present. Registered Nurse level 8 Division of Medical and Psychological Nursing Department of Nursing Siriraj Hospital