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Case Report **Open Access**

Improving Quality of Life among Stroke Patients with Dysphagia: A Case Report

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Abstract

Dysphagia is a disorder that includes any dysfunction from chewing in the mouth to the passage of the bolus into the oesophagus [1]. In the United States, 50%-75% of nursing home residents are estimated as having dysphagia [2]. Dysphagia increases the risk of aspiration pneumonia by up to sevenfold [3] and leads high mortality rates of up to 40% [1]. The most common treatment for patients with dysphagia is the introduction of feeding tubes to prevent aspiration pneumonia [4]. Hence, this paper illustrates the interventions and treatments for stroke patients with dysphagia and the problems encountered by them.

Introduction

Studies have revealed that patients with neurological diseases such as stroke, dementia, and Parkinson's disease exhibit a high risk of dysphagia [3]. Swallowing problems occur in 55% of the patients with stroke and 33% of the patients with dementia; 46% of the patients with swallowing problems exhibit weight loss and poor appetite [5]. Moreover, because of the aging process, older adults can easily develop feeding problems. Oesophageal reflux and hiatus hernia cause discomfort when eating, and changes in smell affect the taste, further decreasing patients' appetites. In addition, poorly fitted dentures and the loss of dentition cause chewing problems and reduce suitable food choices of food [6].

Moreover, there are approximately 50%–75% of nursing home residents have dysphagia in the United States [1], and 60%-80% of them also have a diagnosis of dementia [6]. In addition, polypharmacy is very common among older adults, which can also cause dysphagia and reduced interest in eating; for example, sedation suppresses the cough reflex [3]. Among the patients with dysphagia, 50% experience aspiration pneumonia. In residential homes, aspiration pneumonia causes the highest mortality rate of up to 40% because of both dysphagia and ineffective cough reflex [1].

Older adults with dementia may retain the eating functions but forget the voluntary steps involved in chewing and swallowing. Patients with stroke or other neurological diseases may exhibit some dysfunction in the complex swallowing process, which involves the coordination of more than 40 muscles and numerous cranial nerves in the cerebral cortex, cerebellum, and brain stem; such dysfunctions can result in dysphagia [1].

Case Profile

Physiological Domain

Mr. Wong is an 80-year-old Chinese man with a weight of 60.5 kg and an estimated height of 163 cm (body mass index [BMI]: 22.7 kg/m^2). Since 2007, he has been unable to perform his activities of daily living (ADLs) independently because of a cerebrovascular accident (CVA) with left hemiplegia. He was educated to primary level, had worked as a sailor, and retired at 60. He had a history of recurrent stroke, hypertension, diabetes mellitus, pemphigoid, iron deficiency anaemia, chronic heart failure, and renal impairment. He was followed up in the Geriatric Outreach Service (GOS).

Mr. Wong received a diagnosis of CVA; a nasogastric tube was fitted for artificial nutrition support due to dysphagia and then successfully weaned off on the basis of a speech therapist's reassessment. However, Mr. Wong experienced recurrent stroke after 1 year and the nasogastric tube was reinserted during hospitalisation following two assessments by a speech therapist. The regular medications prescribed for Mr. Wong were Gliclazide 40 mg daily, Famotidine 20 mg twice a day and Nifedipine 20 mg twice a day.

Psychological and Social Domain

Mr. Wong was alert, could make eye contact, and was able to express simple ideas using single words with body language, facial expressions, and gestures such as shaking or nodding of head. Because of recurrent stroke, he received an Abbreviated Mental Test score of 0/10 [7]. In addition, his depression level could not be measured using Geriatric Depression Scale. For patients who cannot verbalise, the Abbey Pain Scale cannot record their experienced

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pain. However, he could exhibit a frown, a tense expression, and struggle when a nurse approached him for nasogastric tube insertion. He was physically restrained with bilateral boxing gloves with limb holders to prevent him from removing the nasogastric tube. Although Mr. Wong was restrained, he continually struggled and attempted to remove the feeding tube up to several times per week.

Mr. Wong was married and had a son and daughter-in-law. He moved into residential home after receiving a diagnosis of CVA. He had a good relationship with his son, who visited him frequently during holidays. The nursing home staff reported that he had no adjustment problems in moving into this residential home. He had no other social connections such as neighbours and friends. No definite religion was reported by Mr. Wong. His financial source was mainly from the Comprehensive Social Security Assistance provided by the government. Overall, he was chair bound and was unable to independently perform his ADLs following the insertion of a feeding tube due to dysphagia. However, his frequent attempts to remove the nasogastric tube despite physical restraints reveal his dissatisfaction with his current situation.

Case Profile and Management Plan

Physiological Domain

Mr. Wong lives in a nursing home; his blood pressure is stable and is approximately 112–136/67–78 mmHg, with a pulse of approximately 72-83 bpm. He receives tube feeding with a milk regimen of Osmolite 1650 mL each day, as recommended by a dietitian. He tolerates this milk product well, without diarrhoea or vomiting. His body weight has increased following the reinsertion of the nasogastric tube. To prevent pressure sores, he has been provided with pressure relieving devices such as a propad mattress and a heel protector. His nutritional status is monitored by calculating his BMI and comparing this with that of previous months. His oral hygiene is satisfactory, with routine oral care conducted by a health worker before each feeding. Regarding elimination, he has double incontinence and wears diapers continuously. His skin is intact and an emulsifying ointment is applied daily.

Psychological Domain

Mr. Wong's major psychological problem is his dissatisfaction with the nasogastric tube. Despite his dysphagia, Mr. Wong shows resistance to the tube by attempting to remove it. Therefore, restraints must be applied on him. He struggles and attempts to remove the restraint, and he frowns, groans, and rocks when a nurse approaches him for nasogastric tube insertion. A case conference was held in the nursing home to discuss this case with the patient's geriatrician, a visiting medical officer, nursing home staff, the responsible gerontological nurse, and the patient's son. The indication for tube feeding was discussed. The geriatrician interviewed the patients' son who insisted that the nasogastric tube should be removed for Mr. Wong's comfort despite the speech therapist's recommendation. Feeding through percutaneous endoscopic gastrostomy (PEG) was offered to Mr. Wong's son, but he refused such operation. The risk of aspiration and the difficulty in oral feeding by the nursing home staff were also discussed. After discussing with the patient's son and nursing home staff, a plan to attempt oral feeding (puree diet and thickener in thin liquid) before nasogastric tube feeding was established. However, Mr. Wong's son was encouraged to visit the nursing home to observe the problems or difficulties encountered by the nursing home staff during feeding. The geriatrician prescribed the removal of the nasogastric tube if oral intake was satisfactory. The patient's situation and progress would be reviewed again after 4 weeks.

After the case conference, the gerontological nurse attempted oral feeding for Mr. Wong. A bowl of puree diet was prepared by the nursing home staff. Mr. Wong was sitting in a well-supported chair with a table top. He was advised to feed himself. He was able to grip the spoon and feed himself; however, his eating condition was messy. The nurse initially allowed him to feed himself and then assisted him. Mr. Wong was able to consume a 500-mL puree diet within 15 min without choking or coughing. No dyspnoea, abnormal breath sounds, or desaturation occurred during feeding. Mr. Wong was willing to open his mouth and he swallowed spontaneously. No food was held or spilled out of his mouth.

This feeding process was explained to the nursing home staff, and they were advised to continue oral feeding. Suitable feeding techniques such as sitting out of bed and supporting the patient's hemiplegic side with a pillow were suggested. Puree diet was provided to Mr. Wong with a thickener added to thin liquid (100 mL thin liquid with three spoons of thickener). Observations were recorded during feeding, and adequate time was provided to him to finish the meal. Body temperature was monitored to rule out silent-aspiration pneumonia. The intake and output and difficulties faced by Mr. Wong during feeding were recorded.

After 10 days, Mr. Wong tolerated oral feeding well without choking or fever. He was willing to receive food and no hyperglycaemia or hypoglycaemias were noted during this period. His fasting glucose and body weight were maintained at 4.7–5 mmol/L and approximately 60 kg (BMI: 22 kg/m^2), respectively. GOS clinic follow up was arranged and the nasogastric tube was successfully removed. Restraint was no longer required. The dietician recommended continuing the current puree diet (500 mL per meal). Mr. Wong's body weight dropped only to 59.3 kg, which was similar to his weight in the previous month; thus, his current diet was maintained.

The patient's son was contacted by the gerontological nurse and informed that the nasogastric tube had been removed. His son expressed his appreciation and thanks to the medical and nursing staff for helping to promote his father's quality of life by removing his restraints. Moreover, after removing the nasogastric tube, Mr. Wong was able to smile at the C nurse and call to her upon meeting.

Discussion

Mr. Wong received a diagnosis of or pharyngeal dysphagia from a speech therapist when he was hospitalised during the acute stage of stroke. A nasogastric tube was inserted, and nonoral feeding was initiated without the speech therapist follow-up after discharge. Studies have demonstrated that most patients with dysphagic stroke can regain safe swallowing within a relatively short period (from a few days to weeks) [8]. Hence, the swallowing ability must be reassessed by a speech therapist in post-stroke patients.

Contrary to common belief, numerous studies have indicated that tube feeding does not yield more favourable outcomes against aspiration pneumonia and cannot lower mortality rate. Tube feeding does not prevent aspiration due to oral secretions, and patients receiving tube feeding always exhibit poor oral hygiene because they lack the chewing and swallowing abilities, which help to prevent the oropharyngeal colonisation of pathogens caused by mechanical clearance [4]. Another study revealed that the dental plague colonisation in 9 out of 15 patients who received tube feeding contained Methicillin-resistant *Staphylococcus aureus*. Hence, they were prone to pneumonia if the aspiration of oral secretions occurred [1].

Currently, no evidence demonstrates that tube feeding reduces the risk of regurgitated gastric content [4]. Up to 64.3% of the patients with stroke who receive nasogastric tube feeding have pneumonia. Therefore, nasogastric tube feeding appears to provide no survival benefit for patients with dysphagia. Nasogastric tube feeding is commonly used to feed patients with dysphagia because of the belief that it can prevent aspiration pneumonia and prolong the life of older adults; however, no evidence supports such claims [4]. Mr. Wong received a diagnosis of dysphagia from a speech therapist, and the doctor recommended inserting a nasogastric tube for feeding despite his son's disagreement. Because Mr. Wong had dysphasia, he was unable to express his opinion verbally; however, he exhibited his resistance towards nasogastric tube insertion through body language and facial expressions. He was restrained in the nursing home and continued to receive tube feeding because of the belief that this would prevent aspiration pneumonia despite the absence of strong supporting evidence for this claim.

During the case conference, the geriatrician suggested the use of PEG and discussed this with Mr. Wong's son. This suggestion was rejected because he didn't want his 80-year-old father to undergo the invasive oesophagogastroduodenoscopy procedure. Studies have indicated that PEG feeding can improve the nutritional status of the patient [1], but it may reduce the lower oesophageal sphincter pressure and increase the risk of gastro esophageal reflux [4]. In dysphagia cases, patients and relatives have the autonomy to choose whether they wish to take the risk of aspiration or to begin tube feeding. They also have the right to know the risks and benefits of tube feeding and the fact that this treatment does not reduce the rate of pneumonia; moreover, the application of physical restraints must be explained to enable patients and relatives to make informed decisions.

Various ethical issues have been raised in the cases of dementia and other incapacitating conditions such as stroke or terminal illness. A 'stage' theory describes the progress of patients with dementia: their functioning progressively declines and they eventually become bedbound and dysphagic during the end stage of the disease. Tube feeding is typically implemented at the end stage of dementia [9]. In the United States, the Patient Self-Determination Act 1990 was passed to guarantee patient rights. Under this act, all institutes receiving government funding must inform patients about their rights to make health care decisions. Sufficient information such as clinical knowledge, disease prognosis, and treatment recommendations should be provided to patients so that they can accept or refuse medical or surgical treatments before becoming incapacitated [10-13]. They should also be informed about their right to make advance care directives to facilitate their medical treatment decisions. Education on advance health care directives must also be provided to the staff of medical facilities, and health care providers must not discriminately admit or treat patients on the basis of their advance care directives [14-16].

Conclusion

Dysphagia is a common problem among older adults. In addition to nonoral feeding, several preventive measures can be implemented for patients with feeding problems. For example, strategies such as modifying food and liquid consistencies, changing the eating position, employing stimulating sensory techniques, and using swallowing manoeuvers can improve physiology and reduce the risk of aspiration; hence, these approaches should be considered before non-oral feeding. After initiation, nasogastric tube feeding is very difficult to wean off and no current protocol aims at revising the need for tube feeding. Therefore, follow-up care should be provided to patients receiving tube feeding, particularly patients with stroke. The reassessment of swallowing ability after the acute stage of stroke should be provided. In Hong Kong, no regulations, similar to those in the United States, require health care institutes to assist patients with advance care planning; this should be a future objective for health care in Hong Kong.

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