

ORIGINAL**Dysphagia Prevalence among Elderly
in Some Vietnamese Hospitals**

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ABSTRACT *Background/objective.* The Vietnamese elderly population has increased rapidly on an annual basis and dysphagia has become a common issue. However, in hospitals, dysphagia screening has not been a concern; the automatic solution for cases of choking/aspiration is still a prescription for tube feeding. In developed countries, oral intake is a priority alternative for dysphagia and has positive consequences. For suitable dysphagia dietary treatment, early, quick and effective screening for dysphagia plays an important role. Therefore, in this study, the aim was to determine the prevalence of dysphagia in the elderly in some Vietnamese hospitals. *Method.* The study was designed as a cross-sectional study and was conducted in three large hospitals in Vietnam. The subjects consisted of 1007 elderly inpatients aged 65 and older. They completed dysphagia screening tests that included the repetitive saliva swallowing test (RSST), the water swallowing test (WST) and Eating assessment tool-10 (EAT-10) questionnaires. The investigators were dietitians who were trained to collect data. *Results.* The rate of dysphagia was quite high 16.5% (166) among elderly inpatients according to the RSST and WST; and 24.6% (248) according to Eat-10 questionnaires. Specifically, according to clinical test, the rate of dysphagia was found to be higher in neurologic disorder group 40% (45/113), the esophageal disorders group 51% (32/63) and the respiratory & laryngeal disorder group 29% (19/65). Almost all subjects who could not sit while they were being examined belonged to the dysphagia group. *Conclusion.* Through a combination of simple screening tests, this study indicated that the rate of dysphagia in elderly inpatients was quite high. Therefore, early dysphagia detection is necessary to administer priority dietary treatment by oral intake instead of tube feeding.

Key Words: dysphagia, hospital, elderly, prevalence, Vietnamese

INTRODUCTION

Older adults are the fastest growing segment of the population in Vietnam. The number of Vietnamese aged 65 and older is projected to increase from 7.8% in 2015 to 17.8% in 2050 (1). Disease risk increases with advancing age. Dysphagia (swallowing difficulty) is a growing health concern issue in our aging population. Swallowing is a complex neuromuscular activity that consists of oral, pharyngeal, and esophageal phases, and involves the coordinated function of many muscles. Thus, many adverse health conditions can influence swallowing function. Neurological diseases, cancers of the head/neck and esophagus, and metabolic deficits are broad categories of diseases that might contribute to dysphagia. A systematic review indicated that dysphagia affected 8.1-80 % of stroke patients and 11-81 % of Parkinson's disease patients (2). Dysphagia may contribute to decreased food and liquid intake and may reflect altered level of consciousness, physical weakness, or lack of coordination in the swallowing mechanism (3). Therefore, prevention and early detection of dysphagia are important in improving health in the elderly.

There are many tools for screening dysphagia depending on conditions and resources. Some previous research on Vietnamese acute stroke patients showed that the rate of dysphagia is quite high, around 33-81% (4-6). Almost these studies were carried out on neurological disorder patients by rehabilitation specialists and sample sizes were limited by the dysphagia screening tools that were used, which require specialized techniques, take time, and can be costly. Under conditions in Vietnam, almost all hospitals have lacked speech therapy specialists and modern equipment such as video fluoroscopy (VF) and video endoscopy (VE) (7). Screening for dysphagia has not been a major concern; even if some hospitals have techniques for screening/assessing dysphagia, the automatic solution for cases of choking/aspiration is still a prescription for tube feeding. Dysphagia is related directly to nutritional status and quality of life. In developed countries, oral intake is a priority alternative for dysphagia and has positive consequences (8, 9).

Therefore, in order to improve Vietnamese dysphagia nutrition management, dietitians also

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should have basic knowledge about how to actively detect dysphagia patients, to prepare food for dysphagia and to apply techniques to feed dysphagia patients by oral intake, in case the dietitians lack support from rehabilitation specialists.

In addition, at present Vietnam is lacking data related to dysphagia rates among general elderly inpatients. Therefore, a simple screening tool would be useful in determining the rate of dysphagia and more importantly can be used by staff members such as dietitians who are not speech or language pathologists to identify dysphagia and aspiration risk in elderly patients or other subjects who may have a high risk of dysphagia. In this study, we used the repetitive saliva swallowing test (RSST), the water swallowing test (WST) and the Eating assessment tool-10 (Eat-10) as initial screening dysphagia tools. These tools are simple, quick, low-cost procedures and in particular have a high sensitivity and specificity compared to modern equipment (7, 10–12). By combining clinical tests at a specific time and questionnaires administered over a span of time, we hoped to detect all subjects who have a risk of dysphagia to determine the proportion of dysphagia in elderly inpatients in some Vietnamese hospitals.

METHODS

Settings and Sample

The study was designed as a cross-sectional study and was conducted for 6 months from August 2018 through January 2019. This research received permission from Hanoi Medical University's ethical committee, number 1318. The study population consisted of elderly inpatients being treated in three large general hospitals in Vietnam, Hanoi Medical University Hospital (500 beds), Dong Da General Hospital (800 beds) and National Geriatric Hospital (500 beds).

Subjects were recruited for the study from all newly admitted patients, i.e., patients in the first 48 hours after admission, by random selection (using a random number table) from admission registers.

The sample size was 1000 subjects who met the inclusion criteria: (a) hospitalized elderly in the three above hospitals, (b) age 65 or over. The exclusion criteria included: (a) refusal to participate in this study, (b) mute, deaf or psychosis and (c) suffering from ventilator, coma, dementia, trauma or injury. All potential subjects completed questionnaires and were screened using swallowing tests.

Data collection

All the questionnaires were filled out by investigators. The investigators were dietitians who were trained to collect study data. Before carrying out the actual study, we conducted a pilot study on 50 patients to revise the instruments.

Below is the information that we obtained.

Demographic data

The data were collected from medical records, caregivers and subjects.

Repetitive saliva swallowing test (RSST)

Patients were asked to swallow their own saliva as many times as possible in 30 seconds; the examiner determined the absence of laryngeal elevation during swallow by observing and/or feeling laryngeal movement. If a patient was unable to perform three consecutive swallows with two retests, he/she suffered from dysphagia. If a patient was able to swallow 3

times or more, then the WST would be administered (10).

Water swallowing test (WST)

The position while drinking water needed to be evaluated: sitting or not sitting (from 30 degrees to 60 degrees). The examiner would offer 3ml water for the subject to drink; if patients choked or their voice changed, patients suffered from dysphagia. If there was no choking or voice change, subjects continued to drink 30 ml water. Subjects who had choking or voice change were dysphagia. If there was no choking or voice change but patients needed to swallow more than once or spent more than 5 seconds swallowing, subjects were suspected to have dysphagia. Subjects who swallowed 1 time within 5 seconds without abnormal symptoms were normal (10). In this study, no dysphagia group would be included both suspected dysphagia and normal status.

Beside the clinical tests, the following questionnaire was also used to screen dysphagia.

Eating assessment tool (Eat-10) questionnaire

Eat-10, a self-reported validated questionnaire that assesses perception of swallowing difficulty was used to evaluate dysphagia risk. The Eat-10 questionnaire was translated from English into Vietnamese. There are 10 simple questions with a total score of 40 points and the cut-off point is 3. If total score ≥ 3 points, it means the patient may have problems swallowing efficiently and safely (13).

RESULTS

This selection process resulted in a total of 1007 elderly inpatients (420 males and 587 females, mean age 75.5 years). Dysphagia was observed in 62 males (6.2%), 104 females (10.3%) and a combination of 166 males and females (16.5%) out of 1007 elderly inpatients. The no dysphagia group was about 83.5% of the total.

Figure 1 shows that with regard to age, the highest prevalence of dysphagia was seen in 83-91 year-old males (25%) and in 92-100 year-old females (40%), and the lowest prevalence dysphagia was observed in 65-73 year-olds, both males and females, with the same rate of 12%.

According to disease analysis, by clinical test, the patients with neurologic disorders (stroke, Parkinson's, etc.), esophageal disorders (dysfunction esophageal, gastroesophageal reflex, etc.) and respiratory & iatrogenic disorders (tracheal surgery, artificial airway, etc.) had high dysphagia incidence (40%, 45/113), (51%, 32/63) and (29%, 19/65), respectively. By the Eat-10 questionnaires, neurologic disorders, esophageal disorders and respiratory & iatrogenic disorder also had high dysphagia incidence at 50%, 75%, 46%, respectively.

Figure 2 shows the distribution of Eat-10 scores. There were 248 subjects (24.6%) who had an Eat-10 score ≥ 3 , which means that they have problems swallowing.

Figure 3 indicates the dysphagia status by clinical test and Eat-10 score. The dysphagia patients screened by clinical test (94%) almost all had an Eat-10 score ≥ 3 points and no dysphagia patients (89%) had Eat-10 score < 3 points.

Figure 4 shows the sitting position to screen dysphagia and dysphagia status of elderly inpatients. The rate of not sitting in the dysphagia group (33%, 54/166) was higher than in the no dysphagia group (3%, 29/841).

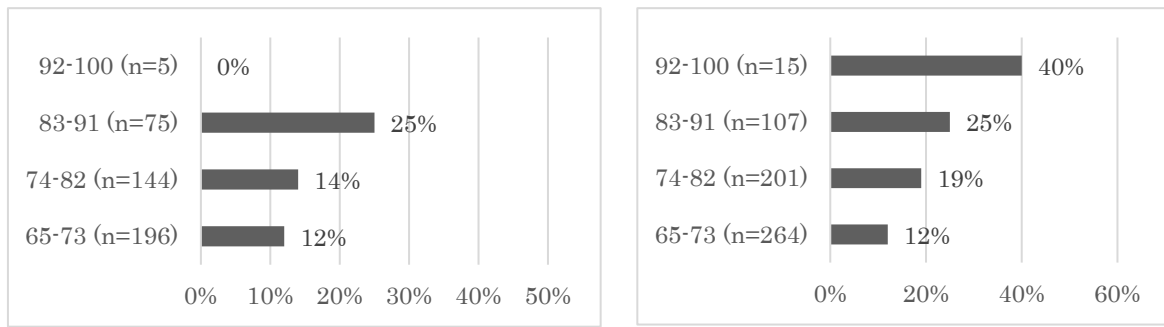


Figure 1. Prevalence of dysphagia by age in males (left) and females (right)

Table 1: Dysphagia status by clinical test (RSST & WST) and Eat-10 questionnaires in elderly inpatients according to function analysis.

Dysphagia status		Neurologic disorders (n=113)	Esophageal disorders (n=63)	Respiratory & latrogenic disorder (n=65)	Other (n=766)
Clinical test	Dysphagia	45 (40%)	32 (51%)	19 (29%)	70(9%)
Eat-10	≥3 score	57(50%)	47 (75%)	30 (46%)	114 (15%)

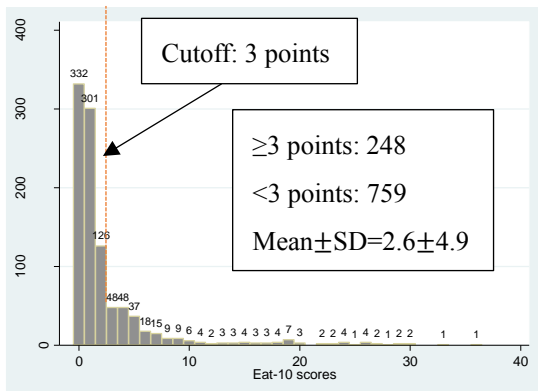


Figure 2: Distribution of Eat-10 scores

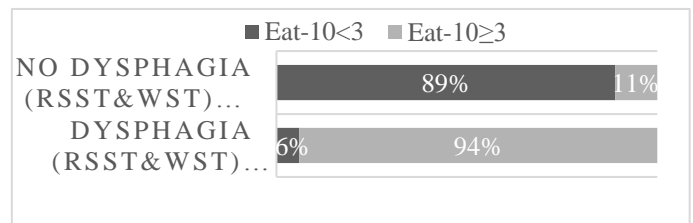


Figure 3: Dysphagia status by clinical test (RSST&WST) and Eat-10 score.

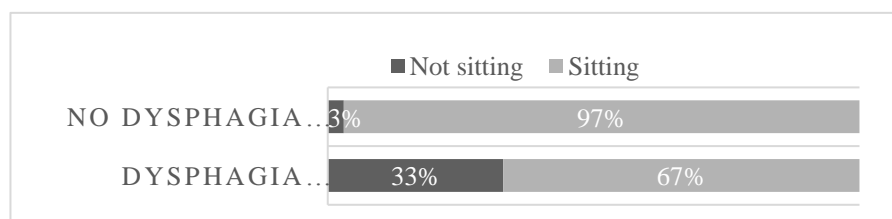


Figure 4: Sitting position to screen dysphagia and dysphagia status of elderly inpatient

DISCUSSION

Dysphagia is a common issue in elderly populations. World-wide, there are several swallowing tests to screen for dysphagia. In hospitals, VF and VE are used widely to assess dysphagia (7). However, they are expensive and require specialized techniques so simple swallow screening tests should be implemented first to detect abnormal cases before using complicated equipment. In Vietnam, dysphagia screening has not been a major concern. Even simple screening tests have not been implemented as standard procedure for all patients at risk of dysphagia such as the elderly, stroke victims, Parkinson's disease, dementia patients, etc.

There have been studies about simple tests such as RSST, WST and Eat-10 questionnaires that were used to screen for dysphagia. RSST and WST were indicated as a useful simple task-screening tool to detect dysphagia and they have high sensitivity, specifically as a predictor of aspiration ($p < 0.05$) compared with VF (7, 11). And the Eat-10 questionnaire also was a reliable dysphagia screening tool (10). Thus, in this study, we used the simple tests to screen for dysphagia on more than one thousand elderly patients. Based on these results, we observed that the results of the Eat-10 questionnaires have a rate of dysphagia higher than the clinical tests because the questionnaires would ask about a range of time, but dysphagia symptoms may not be present when the clinical tests are conducted.

We found that the prevalence of dysphagia was 16.5% (166/1007) by RSST and WST and 24.6% by the Eat-10 questionnaire. These results were similar to those reported by Okamoto et al (15.1%) by using WST and Kawashima et al (13.8%) from questionnaires on community-dwelling individuals aged 65 and older in one prefecture in Japan (14, 15). This is also similar to a dysphagia survey in general hospitals by the Japanese National Institute of Longevity Research (13.6%) (16) and research in the US (about 15%) (12). Based on these results, we realized that the rate of dysphagia in elderly Vietnamese inpatients was quite high and similar to countries which have good dysphagia management systems with screening, dysphagia assessment and texture-modified food for oral intake by dysphagia patients. Through early detection of dysphagia and dysphagia dietary treatment, dysphagia status and quality of life can be significantly improved (8, 9). Therefore, screening for dysphagia is necessary and needs to be implemented widely in Vietnam not only in hospitals but also in the community; the choice of a suitable screening method further depends on the conditions in each country and area.

The rates of dysphagia related to neurologic disorders, esophageal disorders and respiratory & laryngeal disorders were quite high according to the clinical tests and the Eat-10 questionnaires. These results are similar to a systematic review which showed that 8.1–80 % of stroke patients and 11–81 % of Parkinson's disease patients have dysphagia (2). This systematic review had large range rate may be because of the difference method to screening dysphagia and epidemiology. These are patient groups with a high risk of dysphagia. Therefore, it is necessary to screen for dysphagia as soon as possible in these patients.

In Vietnam, dietitians are formally trained and the number of dietitians is gradually increasing. Therefore, by using the simple swallowing screening tools, the

dietitian can actively screen patients for dysphagia and also administer food for dysphagia. In addition, dietitians determine diets for patients so it is more convenient for dietitians to detect dysphagia patients through their eating behavior. These were the reasons why in this study we selected dietitians to be investigators and they performed well.

Dysphagia is usually a concern in the elderly. In this study, we also observed that the higher the age, the higher the risk of dysphagia. The elderly are likely to suffer from sarcopenia, stroke, dementia and many diseases which are closely related to dysphagia. In addition, the ability of the elderly to recover is less than that of younger people because of reduced organ function, so the risk of dysphagia is higher (12).

By comparing the two methods (clinical tests and Eat-10 questionnaires, Fig 3), we observed that almost dysphagia patients (94%) according to the clinical tests had Eat-10 score ≥ 3 points. Therefore, the appropriate cut-off point is 3, as indicated by the questionnaire instructions.

With regard to the sitting position when the clinical tests (RSST, WST) were administered, only 8% (83/1007) could not sit while they were being checked. These patients would lie on a bed tilted 30–60 degrees with head lying on a pillow tilted 30 degrees to administer the test. About 65% (54/83) of bedridden patients suffered from dysphagia. It is understandable that almost patients who cannot sit to swallow are in the dysphagia group because dysphagia usually occurs in patients who are suffering from a neurological disorder such as paralysis from stroke. Therefore, with bedridden patients, dysphagia detection needs to be a concern.

Limitations of this study included limited resources, so we have been unable to undertake a study to validate the Vietnamese Eat-10 questionnaire; we merely translated the English version into Vietnamese and did a pilot study to complete the questionnaire. In any case, the content of the questionnaire is not difficult, with items such as "Swallowing liquids takes extra effort", "Swallowing solids takes extra effort" etc., with levels from (0) "no problem" to (4) "severe problem", so we felt that the possibility of translation bias would be small.

In conclusion, through a combination of simple screening tests, this study indicated the rate of dysphagia in elderly inpatients was quite high. Therefore, early dysphagia detection is necessary to administer dietary treatment by oral intake instead of tube feeding.

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