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Original Research Article

Swallowing difficulties among healthy elderly: prevalence and aetiology

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ABSTRACT

Background: Dysphagia is a common problem among elderly individuals. Very few studies have been done to know the prevalence of dysphagia among healthy elderly individuals. So a study was done to assess the prevalence of swallowing difficulties among healthy elderly individuals and to find out the various causes for it in them.
Methods: 259 elderly individuals were screened using the swallowing disturbance questionnaire to assess the prevalence of swallowing disorders. Those individuals with swallowing disorders were further subjected to modified Barium swallow to know the aetiology.
Results: Of the 259 elderly individuals screened, 85 were females and 174 were males. The mean age and standard deviation was 66.16±6.233. The prevalence of swallowing difficulties was 20.1%, with no significant difference in the gender wise distribution or age wise distribution. Among the various aetiologies diagnosed, idiopathic cause is the commonest, followed by oesophageal neoplasm (21.1%), and then the achalasia cardia (9.6%). Among oesophageal neoplasm, mid-thoracic esophageal neoplasm (9.6%) is the commonest.
Conclusions: Considering the time and cost involved, it is not feasible to subject all elderly for instrumental swallowing evaluation like videofluoroscopy. Hence it would be beneficial to screen the elderly individuals for dysphagia and educate them regarding its importance, as dysphagia can also be associated with serious underlying pathology and complications such as aspiration.

Keywords: Swallowing difficulties, Healthy elderly, Swallowing disturbance questionnaire, Prevalence, Aetiology

INTRODUCTION

Dysphagia is the medical term for difficulty in swallowing and can affect any part of the swallowing pathway. The muscles of the oral cavity, the pharynx, larynx and the oesophagus act in a co-ordinated fashion for normal swallowing process to occur.[1]

Presbydysphagia is defined as swallowing difficulties seen in elderly patients affecting different stages of swallowing. Even though as many as one third of elderly population have age-related difficulty in swallowing, only a few actually present to the clinician.[2]

Oropharyngeal dysphagia can result in insufficient nutrition by affecting respiratory safety and effective swallowing.[3] The common causes of dysphagia among elderly are neuromuscular disorders, degenerative neurological syndromes like dementia and upper digestive tract cancer.[4,5] With aging, there is reduction of oral, pharyngeal and oesophageal functions and hence the elderly, who are otherwise healthy are also at risk of developing dysphagia. But not much is known about the prevalence of dysphagia in healthy elderly.[6,7]

The aim of the present study was to assess the prevalence of swallowing difficulties and to find out the various causes of dysphagia among the otherwise healthy elderly individuals.

METHODS

A prospective study was done including all individuals above 60 years who attended a tertiary health care centre out-patient department during the period of 1 year from April 2016 to March 2017. Relevant demographic data and history were obtained from these patients. Swallowing disturbance questionnaire (SDQ) was used to assess the occurrence of swallowing disorders.

SDQ which was originally developed for detecting dysphagia symptoms in patients with Parkinson's disease (PD) is a self-reporting 15-item questionnaire on swallowing disturbances and is suitable for patients who could read and understand its contents.[8] It could also be read to the patient by a caregiver, nurse, or physician. The questions covered the common swallowing disturbances that appeared in the oral and pharyngeal phases of swallowing. Five questions (questions 1–5) were related to the oral phase of swallowing and 10 questions (questions 6–15) were related to the pharyngeal phase. Fourteen questions were rated by a four-point (0–3) scale (0 for no disturbance and 3 for severe disturbance), and one was a ''yes/no'' question (yes was scored 2.5 and no was scored 0.5). The reliability of the SDQ was confirmed by calculating the Cronbach's α for the 15 questions as being 0.8.[9]

Patients with a total SDQ score of equal to or more than 12.5 were thought to have the swallowing difficulty. A detailed clinical examination was performed in them and they also underwent modified Barium swallow to understand the aetiology.

Individuals below 60 years, allergic to contrast material, with clinical evidence of aspiration, diagnosed with Parkinsonism, upper GI malignancy, neurological disease such as stroke, and or with obvious oropharyngeal pathology on Otolaryngology evaluation were excluded from the study.

In the supine position, patients were given 10ml of Barium sulphate mixture (Baritop G 150% w/v 100 ml) mixed in water, for initial assessment of the upper aero digestive tract and to rule out any signs of aspiration. It was followed by a mouthful of Barium (approx. 25 ml) and the patients were asked to hold the Barium in the mouth for a while. Once the fluoroscopic unit is ready for exposure, continuous screening of the oropharynx, proximal and distal oesophagus and gastro esophageal junction was done for free flow of the Barium and any pathology noted was documented.

Data analysis

Data was presented in percentage and frequency and was compared using Chi-Square test. It was analysed using IBM SPSS 22 programme.

RESULTS

A total of 259 individuals with 85 females and 174 males, that ranged in age from 61 to 98 years were screened (Figure 1). The mean age and standard deviation was 66.16 ± 6.233.

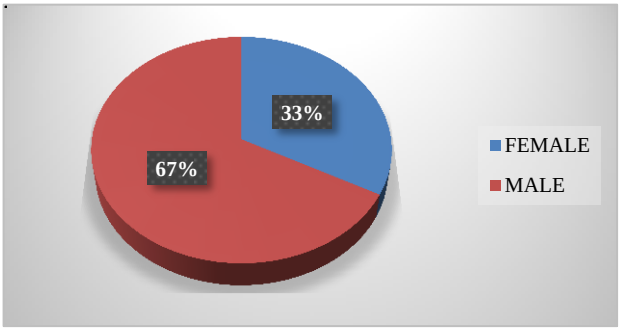

Figure 1: Gender wise distribution of individuals screened.

Table 1: Gender wise distribution of prevalence of swallowing difficulty.

	Gender		Chi-square value	P value
	Female (%)	Male (%)		
Dysphagia	20 (38.5)	32 (61.5)	0.940	0.332
Normal	65 (31.4)	142 (68.6)		
Total	85 (100.0)	174 (100.0)		

Table 2: Age wise distribution of prevalence of swallowing difficulty.

Age	SDQ score		Total	Chi–square value	P value
	<12.5 (Normal) (%)	≥12.5 (Dysphagia) (%)			
61-70	172 (83.1)	40 (76.9)	212 (81.9)	2.810	0.206
71-80	29 (14.0)	8 (15.4)	37 (14.3)		
Above 80	6 (2.9)	4 (7.7)	10 (3.9)		
Total	207 (100.0)	52 (100.0)	259 (100.0)		

The prevalence of swallowing difficulties (score ≥12.5 as by SDQ) was 20.1% (52 individuals) which included 20 females (38.5%) and 32 males (61.5%) (Table 1). Swallowing difficulty was more in 61-70 years age group (76.9%) (Table 2). But there was no significant difference in the gender wise distribution (p-value was 0.33) or the age wise distribution of swallowing difficulty (p value was 0.20).

Table 3: Percentage distribution of response to swallowing disturbance questionnaire (n=259).

SN	Questions	Never	Seldom	Frequently	Very frequently
1	Difficulty chewing food	64.10% (n =166)	20.50% (n=53)	12.40% (n=32)	3.10% (n=8)
2	Food residues in mouth, after swallowing	73.40% (n=190)	19.30% (n=50)	6.90% (n=18)	0.40% (n=1)
3	Nasal regurgitation	93.10% (n=241)	6.60% (n=17)	0.40% (n=1)	0.00% (n=0)
4	Dribbling from mouth	98.50% (n=255)	1.50% (n=4)	0.00% (n=0)	0.00% (n=0)
5	Difficulty swallowing saliva	89.20% (n=231)	7.30% (n=19)	3.10% (n=8)	0.40% (n=1)
6	Swallow chewed up food several times before it goes down throat	69.90% (n=181)	7.70% (n=20)	15.40% (n=40)	6.90% (n=18)
7	Difficulty in swallowing solid food	64.50% (n=167)	10.40% (n=27)	12.00% (n=31)	13.10% (n=34)
8	Difficulty in swallowing pureed food	74.90% (n=194)	10.00% (n=26)	12.40% (n=32)	2.70% (n=7)
9	Feeling of lump of food stuck in throat	70.70% (n=183)	8.90% (n=23)	10.40% (n=27)	10.00% (n=26)
10	Cough while swallowing liquids	89.20% (n=231)	9.30% (n=24)	1.50% (n=4)	0.00% (n=0)
11	Cough while swallowing solid food	92.70% (n=240)	6.60% (n=17)	0.80% (n=2)	0.00% (n=0)
12	Change in voice immediately after swallowing	92.30% (n=239)	6.90% (n=18)	0.80% (n=2)	0.00% (n=0)
13	Coughing or breathing difficulty as a result of saliva entering windpipe	91.90% (n=238)	7.70% (n=20)	0.40% (n=1)	0.00% (n=0)
14	Breathing difficulty during meals	83.80% (n=217)	11.20% (n=29)	4.60% (n=12)	0.40% (n=1)
15	Suffered from respiratory infection in the past year	Yes		No	
		0.4% (n=1)		99.6% (n=258)	

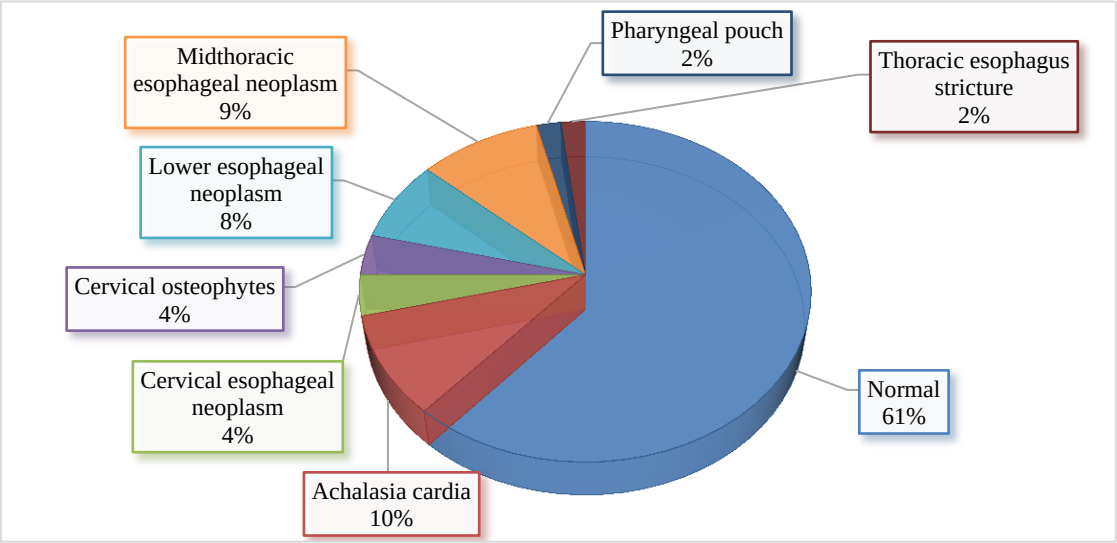

Figure 2: Aetiology of dysphagia.

Table 3 shows the distribution of responses to SDQ. The percentage of occurrence of symptoms of SDQ, 'very frequently' ranged from 0–13.1%. It was more for questions 1, 6, 7, 8, and 9. There was statistically significant difference between the normal elderly & those with dysphagia in the response to oral and pharyngeal phase questions. The p-value was <0.001 for questions 1, 2, 5, 6, 7, 8, 9, 10 & 14, and 0.015 for question 12.

Using modified Barium swallow, various causes of dysphagia were diagnosed among the 52 patients (Figure 2). The most common cause was idiopathic (61%) in 32 individuals. As seen in the figure, 20 cases had positive findings for dysphagia. Among the 20 cases with positive findings, the commonest cause was Oesophageal neoplasm (21%), followed by Achalasia cardia (10%). Oesophageal neoplasm was more common in males (7 cases) and Achalasia cardia was more common in females (3 cases).

There were 11 cases of Oesophageal neoplasm. Of which 5 cases were of mid thoracic oesophageal malignancy, 4 cases of lower oesophageal malignancy and 2 cases of cervical oesophageal malignancy.

Dysphagia due to other causes included 2 cases of cervical osteophytes, 1 case each of pharyngeal pouch and thoracic esophageal stricture.

DISCUSSION

Dysphagia is an increasingly common problem, but it is poorly understood and it represents a significant health care problem among older adults. The prevalence of dysphagia among elderly varies depending on the concomitant medical disorders, the population studied, and the diagnostic instrument used.

It has been estimated that 13% to 35% of elderly individuals who live independently report dysphagic symptoms, and that the vast majority fail to seek treatment. [6,10,11]

Prevalence and symptom profiling of oropharyngeal dysphagia in 800 healthy community dwelling older population using the validated Sydney oropharyngeal Dysphagia Questionnaire was observed as 11.4% with dysphagia severity directly correlating with subject age.[7]

In the present study prevalence of swallowing difficulties among healthy elderly was determined using SDQ and was observed to be 20.1%. It was noted that there was significant difference in the response to questions of SDQ related to pharyngeal phase (Questions 6-15) which also correlated with the findings in modified Barium swallow.

The evaluation of a patient with dysphagia often requires multiple studies with significant attendant time and cost.

Very few studies have reported the prevalence of aetiology of dysphagia.

A prospective study on prevalence of aetiology of dysphagia was done on 140 individuals above 18 year of age, with predominant symptom of difficulty in swallowing utilizing endoscopy, barium swallow, fine needle aspiration cytology (FNAC) and biopsy and observed to have gastro esophageal reflux disease (GERD) (28.57%), followed by pharyngeal growth (18.5%) and dysphagia due to obstructive oesophageal causes as commonest.[12]

Individuals above 60 years was more affected by oncologic and neurologic causes of dysphagia by a literature review done by Roden and Altman.[13]

A retrospective study using electronic charts of 100 consecutive patients with complaints of dysphagia, was conducted to determine the prevalence of etiology using flexible Laryngoscopy, modified Barium swallow study, esophagoscopy, barium esophagography, manometry, and ambulatory pH testing. It was observed that reflux (27%), post irradiation dysphagia (14%), and Cricopharyngeus muscle dysfunction (11%) were the commonest causes.[14]

The present study has utilized only modified Barium swallow to understand the aetiology of swallowing difficulties. Of the 52 elderly who were diagnosed to have swallowing disorders, the commonest cause was idiopathic (61%), followed by oesophageal neoplasm (21%), and then achalasia cardia (10%). This could probably because the study was done on healthy elderly. Large sample size and inclusion of other investigative modalities might help in finding out the causes in the idiopathic group.

Neuromuscular incoordination could be the factor involved in majority of the idiopathic cases. Specific investigations may be done to rule out such causes, as the patients require to be taught swallowing exercises as well as proper techniques to swallow the food. Similarly consistency of the food might also need to be altered in such patients, so as to facilitate easy swallowing and reduce the risk of aspiration.

CONCLUSION

Impact of dysphagia on quality of life and health is significant. Therefore it should be seen as a matter of concern. It is not feasible to subject all elderly for instrumental swallowing evaluation like video-fluoroscopy as nearly two third of the patients have normal study. Hence it would be beneficial to screen elderly individuals for swallowing disorders and educate them regarding its importance, as dysphagia can also be associated with serious underlying pathology and complications such as aspiration. This also helps to determine who should be subjected to further in depth evaluation. Understanding the common causes would help in early intervention and improve the quality of life in elderly.

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