



# ASSESSING SWALLOWING FUNCTIONS OF PATIENT UNDERGONE CAROTID ENDARTERECTOMY USING EATING ASSESSMENT TOOL (EAT-10)

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Swallowing is defined as the semiautomatic motor action of the muscles of respiratory and gastrointestinal tract that propels the food from oral cavity to stomach (Miller, 1986). The swallowing depends on highly complex functions because it covers many anatomical regions, has voluntary, involuntary components and involves synchronized breathing and swallowing inhibition.

Dysphagia is any disturbance or difficulty in the swallowing process when transport the bolus from the oral cavity to the stomach. Carotid Endarterectomy is a surgical procedure that removes plaque build-up from inside a carotid artery to reduce the risk of stroke from carotid artery stenosis. Dysphagia following bilateral carotid endarterectomy may result if the recurrent laryngeal nerve (RLN) is weakened and the vocal fold is paralyzed. The open airway prevents the vocal folds from acting as the final line of aspiration defence.

Ekberg (1989) analyzed the capacity of 12 patients to swallow before and after carotid endarterectomy. Findings prior to surgery were common for all swallowing trials so after surgery five patients had pharyngeal dysfunction and dysphagia. Two patients had swallowing difficulty within 1 month of surgery. These researches speculated that either the dysfunction was attributable to the peripheral nerve injury (vagus) or cerebrovascular damage during the procedure.

Diagnosis of dysphagic patients by a multidisciplinary team including speech language pathologist's early evaluation helps in improving the better outcomes. For initial easy assessment speech language pathologist used Eating Assessment Tool (EAT-10) a screening test to measure the swallowing difficulties. The present study focus on identifying the swallowing difficulties for patients who undergone carotid endarterectomy and provide needed support for the individual to improve the swallowing abilities and functions in daily routine.

## METHODOLOGY

The aim of the study is to identify and manage the swallowing difficulties in early stages for patients who undergone carotid endarterectomy to assure safe oral intake and to reduce severe complications of dysphagia.

## Subjects

A total of 30 patients with the age within 50 to 65 years of age enrolled in the study who endured carotid endarterectomy following one or more transient ischemic attacks (TIAs) in the intervening 6 months and carotid artery stenosis spanning 50 percentage.

## Inclusion criteria

- Subjects with age range of 50 to 65 years with mean of 57.5.
- Subjects with normal motor, sensory and cognitive skills.
- Subjects undergone carotid endarterectomy following one or more transient ischemic attacks (TIAs).
- Subjects with post carotid endarterectomy within two to three weeks.
- Subject for swallowing studies were normal before surgery.

## Exclusion criteria

- Subjects having any congenital issues.
- Subjects with other neurological issues.

## Materials

The 10-item Eating Assessment Tool is a clinical instrument which document self administered symptom- specific outcome for dysphagia. It is easily molded, simple to measure, has exemplary internal accuracy, reliability for testing and validity dependent criteria. EAT-10 consists of 10 questions based on swallowing difficulties rated on a scale from 0 to 4, where 0 indicates no problem to 4 indicates severe problem i.e., what extent they experience the following problems. If the EAT-10 score is 3 or higher (Ten questions multiplied into four), have problem swallowing efficiently and safely.

## Procedure

Thirty subjects undergone carotid endarterectomy within two months were notified of the study objective and protocol, and prior consent was sought. Participants also received a brief introduction on the Eating Assessment Tool (EAT-10) and the ten questions. Given time period of 20 minutes to complete the questionnaire and were asked to score each question on comparison scale from 0 to 4, where 0 indicates no swallowing difficulty and 4 indicates severe swallowing difficulty.

## Analysis

Analyzed the self-rating score obtained from the individuals and the result has been discussed.

## RESULT AND DISCUSSION

EAT-10 score aspects were not usually distributed, so non-parametric measures were used to compare outcomes between the various variables. The descriptive statistics are described using means and standard deviations.

QUESTION NO	EAT ITEM	MEAN	STANDARD DEVIATION
1	I cough when I eat.	2.5	1.8
2	Swallowing liquids takes extra effort.	2.7	2.2
3	Swallowing solids takes extra effort.	3.0	2.6
4	The pleasure of eating is affected by my swallowing.	3.4	2.3
5	My swallowing problem has caused me to lose weight.	4.0	2.4
6	My swallowing problems interfere with my ability to go out for meals.	4.0	2.4
7	Swallowing pills takes extra effort.	4.3	2.6
8	When I swallow food sticks in my throat.	4.5	2.7
9	Swallowing is painful.	4.6	2.7
10	Swallowing is stressful.	4.6	2.4

Table 1.1 showing the Mean and standard deviation of the EAT-10 item scores ordered in a scale section from the lowest (most difficult) to the highest (least difficult) scoring item.

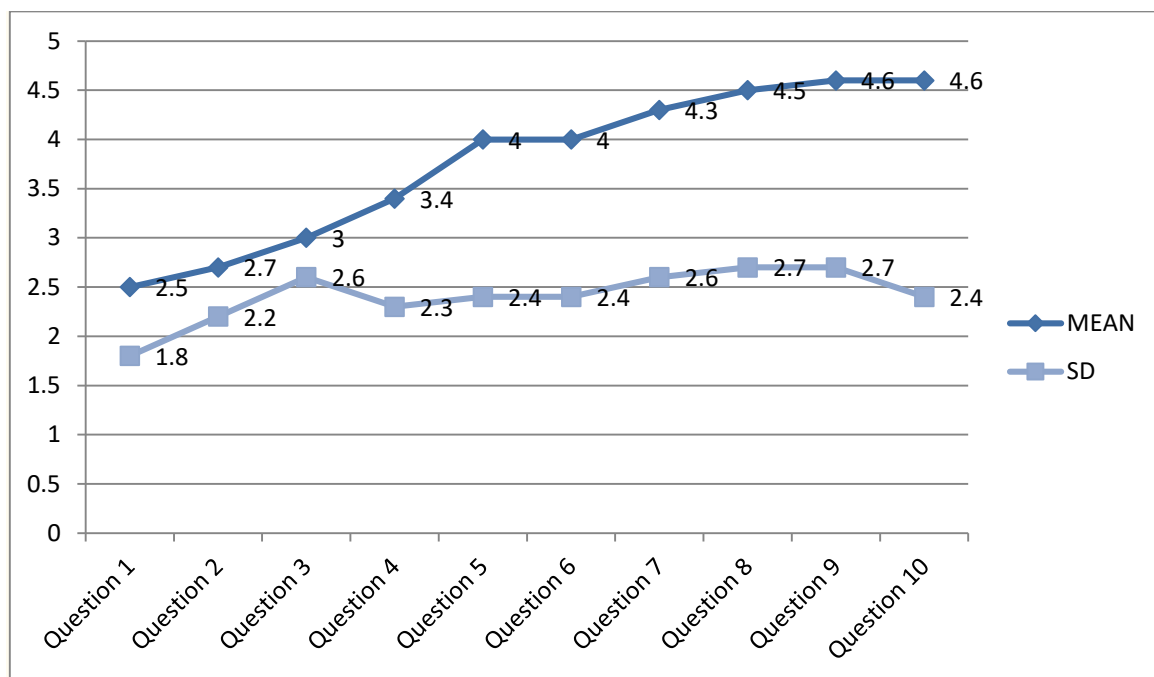


Fig 1.1 showing the Mean and standard deviation of the EAT-10 item scores ordered in a scale section from the lowest (most difficult) to the highest (least difficult) scoring item.

## DISCUSSION

The above results indicated that the swallowing difficulty varies in different aspects. The mean scores revealed less score for cough while eating (aspiration), i.e. the most difficult task post endarterectomy. Followed by least scores obtained for effort intake of liquid & then solid consistency within two to three weeks.

The present study in accordance with Monini, Taurino (2005) documented the possible existence of cranial nerves following carotid endarterectomy. A hospital follow-up involved 60 days after surgery, serial speech and swallow tests. While most patients only had intermittent problems, symptoms persisted at 17.5 percent. Of those, recovery was needed by just 9 percent. In a similar retrospective review of 19 patients following endarterectomy, swallow endoscopies were performed at 5 and 90 days after the procedure. In the first test dysphagia was evident in 15 to 19 patients.

The latest findings offer important knowledge about their swallowing state, and help SLP's to facilitate early intervention and provide the patient with the necessary resources to develop their everyday life swallowing abilities and functions.

## SUMMARY AND CONCLUSION

Dysphagia in carotid endarterectomy can be a crippling complication. Easily recognizing challenges, defining and initiating action helps the patient heal from trouble swallowing and live healthy quality of life.

Total of 30 patients post carotid endarterectomy evaluated using EAT-10 swallowing screening tool within two weeks. All patients were informed regarding aim and procedure of the study and asked to mark response between 0 – 4 on a rating scale indicating no difficulty to severe difficulty and prior consent was obtained.

The results revealed that individuals following carotid endarterectomy have reported oropharyngeal dysphagia. The mean scores are lesser (most difficulty) for cough while eating i.e. aspiration followed by issues in

swallowing liquid and solid food. Early identification and intervention can help them to improve their swallowing difficulty and quality of life.

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