

## The therapeutic effect and complications of OE tube feeding in stroke patients

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### Background and Objective

Swallowing disorders commonly occur in stroke patients and may cause aspiration pneumonia or malnutrition. Acute stroke patients with severe dysphagia are usually fed by nasogastric tube. However, that Method is inconvenience and sometimes causes complications such as aspiration pneumonia or diarrhea. The oro-esophageal tube (OE tube) was used as an alternative parenteral feeding Method in patients whom safe oral feeding was impossible. The aim of this study was to evaluate the therapeutic effect and complications of OE tube in stroke patients with dysphagia.

### Methods

This study was designed as a retrograde medical chart review. The authors reviewed the medical records of dysphagic stroke patients who were recommended to use OE tube feeding from May 2013 through June 2017. OE tube feeding was indicated for patients who had severe dysphagia with decreased gag reflex, but had possible cognitive and hand function to achieve OE tube insertion according to the physiatrist's instruction. Thirty-eight stroke patients were recommended to use OE tube feeding based on their videofluoroscopic swallowing study (VFSS) findings. Of these, 17 patients were received OE tube feeding training and conventional dysphagia therapy. Follow-up VFSS were performed seriously, based on the patients' condition. If a patient could swallow therapeutic food with certain viscosities without serious aspiration or choking, and showed low amount of pharyngeal residue after swallowing during the VFSS, oral feeding was considered to start. Patients' clinical information including stroke characters, duration of intervention, and complications of OE tube feeding were evaluated. Patients were divided into the two groups according to final feeding Methods.

### Results

Seventeen patients attempted OE tube feeding. Among them, 11 (64.7%) patients could change full oral feeding on their follow-up VFSS evaluation. Table 1 showed demographic factors of patients according to the feeding Methods. Full oral feeding was achieved in younger patients. Among 9 patients with lateral medullary infarction, 5 (55.6%) patients were able to eat orally. However, 75.5% patients showed gastroesophageal reflux disease regardless of changing to the oral feeding. Patients who could change to oral feeding were significantly improved swallowing function while patients who could not change to oral feeding showed significant improvement only in pharyngeal phase of functional dysphagia scale, especially amount of pharyngeal residue (Table2).

## Conclusion

OE tube feeding itself could facilitated swallowing and assisted stroke patients to transition to oral feeding. The OE tube stimulates the pharynx during insertion and enhances the swallowing reflex and relaxation of upper esophageal sphincter. This study suggests that OE tube training could be a therapeutic Method for patients with severe dysphagia after stroke.

**Table 1. Demographic factors of Patients according to the feeding methods (N=17)**

	Patients who could change to oral feeding (n=11)	Patients who could not change to oral feeding, OE tube only (n=6)
Age (year)*	56.3 ± 21.7	72.2 ± 15.4
Gender (M/F)	7/4	4/2
Stroke type (ischemic/hemorrhagic)	8/3	2/4
Stroke lesion	Lateral medullar (n=5) Bilateral pons (n=2) Bilateral MCA infarction (n=2) Basal ganglia (n=2) Thalamus (n=1)	Lateral medullar (n=4) Bilateral pons (n=1) Pons, cerebellum (n=1)
Initial FDS	47.7 ± 18.6	49.1 ± 15.9
Initial PAS	8.0	8.0
OE tube duration	14.1 ± 7.6	54.8 ± 38.5
Complications	GERD (n=7) Aspiration pneumonia (n=1)	GERD (n=6) Aspiration pneumonia (n=3) GI bleeding (n=1)

Values are mean ± SD. FDS: functional dysphagia scale, PAS: penetration aspiration scale, MCA: middle cerebral artery, GERD: gastroesophageal reflux disease, GI: gastrointestinal. \*: p<0.05

**Table 2. Changes of Swallowing function**

	Patients who could change to oral feeding (n=11)			Patients who could not change to oral feeding, OE tube only (n=6)		
	Initial VFSS	Final VFSS	p-value	Initial VFSS	Final VFSS	p-value
FDS (total)	47.7 ± 18.6	28.5 ± 19.4	< 0.01	49.1 ± 15.9	44.8 ± 25.3	0.753
FDS (oral)	6.1 ± 3.3	3.4 ± 3.6	0.02	8.7 ± 5.6	8.1 ± 4.9	0.521
FDS (pharyngeal)	38.9 ± 12.8	25.7 ± 16.2	< 0.01	40.2 ± 18.4	35.8 ± 20.3	0.03
PAS	8.0	4.7±1.3	< 0.01	8.0	7.7 ± 0.5	0.936

Values are mean ± SD. FDS: functional dysphagia scale, PAS: penetration aspiration scale \*: p<0.05