

Prognosis of poststroke dysphagia

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SUMMARY

197 stroke patients were evaluated by means of swallowing videofluorography (SVF) from 1989 to 1995. The videotapes of SVF, medical charts and therapy records were reviewed to determine the prognosis factors of poststroke dysphagia, and effectiveness of swallowing therapy. The swallowing therapy can improve a patient's oral movement and timing of the swallow reflex. However, these patients with the following symptom(s) showed poor improvement: 1) silent aspiration, 2) aspiration after the swallow, 3) more than 80 years old, 4) less than 3 months after onset of their stroke(s) and duration of treatment, 5) non-fluent aphasia, 6) speech intelligibility below the 3rd grade, 7) difficulty to maintain the sitting position.

Therefore, poststroke dysphagia should be treated by not only speech pathologists, but also by a multidisciplinary team for a sufficient time period.

INTRODUCTION

Passage of solids or liquids through the pharynx without penetration into trachea is an important factor in successful swallowing. When penetration over the vocal folds (aspiration) occurs, an individual is at risk for dehydration and a variety of pulmonary complication. Swallowing difficulty also decreases the patient's quality of life with tube feeding, and hinders his progress in the rehabilitation.

The purpose of this investigation is to determine the prognosis factors of poststroke dysphagia, as well as the effectiveness of swallowing therapy. After detection, we can make our decision concerning the duration and the goals of poststroke dysphagic patients. It promotes patients' rehabilitation, shortening their hospitalization period, and better quality of life.

MATERIAL AND METHODS

We evaluated 197 poststroke patients with SVF from May 1989 to December 1995. There were 82 aspirating patients, and we gave swallowing therapy to 78 patients. The videotapes of SVF, medical charts, and speech therapy records of the 78 aspirating patients were reviewed using the following variables: 1) Extent of improvement, 2) type of aspiration, 3) timing of aspiration, 4) variety of treatment techniques, 5) age, 6) months after onset of their stroke(s), 7) duration of treatment, 8) speech and/or language symptom(s), 9) speech intelligibility, 10) mobility and stability in ADL.

We calculated the rate of their improvement and determined; 'Improved group' included 33 patients who showed improvement in more than 4 areas, 'Partial improved group' included 33 patients who showed improvement in 1 to 3 areas, and 'Non improved group' included 12 patients who did not show any improvement. We analyzed the ratio of improved or non-improved groups in each variable.

Table 1 : The ratio of improved group in the variables

	The best improved group	The ratio	The worst improved group	The ratio
Type of aspiration	Audible aspiration	45.7%	Silent aspiration	39.5%
Timing of aspiration	Before/during the swallow	52.4%	After the swallow	23.8%
Age	40s	87.5%	More than 80 years old	20%
Months after onset	Less than 3 months	41.7%	Passed the 13th month mark	33.3%
Duration of treatment	4-12 months	58.6%	Up to 3 months	32.6%
Speech/language symptom(s)	Dysphonia/dysarthria	54.2%	Aphasia	21.4%
Speech intelligibility	The 1st and the 2nd grade	More than 55%	Below the 3rd grade	Less than 36%
Mobility and stability	Walking	50%	Bed ridden	11.1%

RESULTS AND CONCLUSIONS

1) Extent of improvement : 47 patients(60.3 %) showed improvement in timing of the swallow reflex. 42 patients (53.8%) showed improvement in the oral phase(e.g. lips and tongue movements). 35 patients(44.9%) improved their food intake level, and 29 patients (37.2%) decreased their frequency of coughing and choking.

2) Type of aspiration : The ratio of improvement in audible aspirators (45.7%) was better than that of silent aspirators (39.5%). We considered not only the motor function important but also the sensory ability in the pharynx and larynx to be important factors in recovering from poststroke dysphagia.

3) Timing of Aspiration : The patients who aspirated before or during the swallow showed the highest ratio of improvement among all groups at 52.4%.

Many patients improved their swallow reflex and their oral phase, therefore they could recover from aspiration before or during the swallow. The patients with aspiration after the swallow showed the worst ratio of improvement (23.8%).

4) Variety of treatment techniques: As for indirect therapies, 64 patients (82.1%) were treated by speech pathologists with thermal stimulation. 59 patients (75.6%) practiced oromotor exercises. As for direct therapies, 46 patients (58.9%) were to limited one bite of solids or one sip of liquids. 41 patients (52.6%) had their posture modified while eating via chin down, trunk tilting, and so on by speech pathologists, occupational therapists, or physical therapists.

5) Age: The ratio of non-improved increased as the patients grew older. For those patients in their 50s and 60s, the ratio was only 5.9% and 7.1%, however 40% of the patients who were more than 80 years old showed no sign of improvement. 87.5% of the patients in 40s improved very well, however only 20% of the patients more than 80s could improve well. Therefore it becomes difficult for elderly patients to improve after poststroke dysphagia.

6) Months after the onset of their stroke(s): 33.3% of the patients who had passed the 13th month mark after their onset were in improved group, however other 33.3% of them were not able to show any improvement. We guess it is because of small infarctions or disuse syndrome might have occurred. 41.7% of the patients who received SVF less than 3 months after the onset of their stroke(s) showed good improvement. On the other hand, the ratio of non-improved in this group at 18.8% still seems rather high. Usually some patients are unstable in respect to their vital signs or alertness, because they are still in the subacute stage for these 3 months after the onset of their stroke(s). Therefore it might depend on the duration of treatment with respect to whether the patient can show any improvement or not.

7) Duration of Therapy: In the group that received swallowing therapy for up to 3 months, 10 patients at 21.7% showed no improvement and 15 patients at 32.6% showed good improvement. Both of these two ratios were the worst scores in all groups. The 8 non-improved patients in this group had also passed the less than 3rd month mark after the onset of their stroke(s). In the 4-12th month group, the ratio of non-improved was only 6.9% and the ratio of improved, 58.6% was the highest among all groups. We think it is necessary for some aspirating patients in the subacute stage to receive swallowing therapy and to be observed by speech pathologists for a sufficient time period.

8) Speech/Language Symptom(s): 91.7% of the patients who showed no sign of improvement were in the dysphonia / dysarthria group or the dysphonia / dysarthria + intellectual impairment group. On the other hand, the dysphonia / dysarthria group showed the highest ratio of improvement at 54.2%. However, the aphasic patients demonstrated the worst ratio of improvement at 21.4%. All these aphasic patients were of the non-fluent and mixed type, therefore we guess that difficulty of comprehension and oral apraxia both hinder the improvement of dysphagia.

9) Speech intelligibility: We divided patients into 5 groups of speech intelligibility. We can understand every word of a patient's speech in the 1st grade. We can understand almost every word but with a few exceptions of a patient's speech in the 2nd grade. We can understand the 3rd grade patient's speech only when we know their issues. We can understand only a few words in the 4th grade patient's speech, and no words in the 5th grade patient's speech. 58.3% of the 1st grade and 65% of the 2nd grade patients showed good improvement. However, it is clear that the patients below the 3rd grade showed a worse ratio of improvement.

10) Mobility and stability in ADL : With mobility in ADL , 50% of the walking patients showed the highest ratio of improvement . The independent wheelchair patients had a tendency for better ratio of improvement (48.4%) in comparison to that of the dependent wheelchair patients (41.7%) . The bed-ridden patients who were not able to maintain a sitting position showed the worst ratio of improvement at 11.1% .

The swallowing therapy given by speech pathologists can improve a patient's swallow reflex and oral phase . The effectiveness of swallowing therapy could lead the patients to improve aspiration before / during swallow , decrease the frequency of choking and coughing , and improve the food intake level . However , the following patients showed poor improvement ; 1) silent aspirator , 2) aspiration after the swallow , 3) more than 80 years old , 4) less than 3 months after onset and/or duration of treatment , 5) non-fluent aphasia with difficulty of comprehension , 6) speech intelligibility below the 3rd grade , 7) difficulty to keep the sitting position .

Therefore , poststroke dysphagia should be treated by not only speech pathologists , but also by a multidisciplinary team for a sufficient time period .