

Synchronized Electrical Stimulation in Treating Pharyngeal Dysphagia

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Objective/Hypothesis: The objectives were to test the hypothesis that synchronous contraction of the thyrohyoid muscle by electrical stimulation during swallowing would improve dysphagia resulting from reduced laryngeal elevation and to evaluate the effectiveness of the synchronous electrical stimulator.

Study Design: Prospective study.

Methods: Eleven male and 12 female patients (age range, 35–87 y) with moderate to severe degree of dysphagia resulting from reduced laryngeal elevation who did not respond to medical treatment were treated by stimulating synchronous contraction of the thyrohyoid muscle during swallowing with the synchronous electrical stimulator. Treatment was given daily for 4 hours until criteria for improved swallow were fulfilled or other intervention was deemed necessary. Follow-up was performed monthly (range, 3–33 mo).

Results: Of the 23 patients, 20 showed marked improvement at the first course of treatment. The duration of stimulation varied from 2 to 4 days (median duration, 2 d) in patients with moderate dysphagia and from 3 to 30 days (median duration, 6 d) in patients with severe dysphagia. Three patients showed failed synchronous electrical stimulator treatment, one owing to device failure and two requiring gastrostomy for feeding. Six patients who achieved improved swallow criteria relapsed at 2 to 9 months after the first treatment course and were successfully treated with an additional course of synchronous electrical stimulation.

Conclusions: The study supports the hypothesis that stimulating synchronous contraction of the thyrohyoid muscle by synchronous electrical stimulator during swallowing improves dysphagia resulting from reduced laryngeal elevation. Synchronized electrical stimulation has the advantages of noninvasiveness and actively assisting swallowing and can be used as an alternative treatment. The synchronized feature of the synchronous electrical stimulator helps to restore normal swallowing mechanism and decreases the incidence of nasogastric tube insertion and gastrostomy.

Key Words: Dysphagia, stimulation, aspiration, rehabilitation, nutrition.