

A New Home Health Approach to Swallowing Disorders

Rhonda Chetney MS, RN Karol Waro MS, CCC, SLP -

Home Healthcare Nurse October 2004 Volume 22 Number 10 Pages 703 - 707

Abstract Dysphagia has devastating effects on millions of adults and children in the United States and contributes to the increasing cost of healthcare because of the aspiration that results. A new treatment, Vital-Stim, is a form of electrical stimulation that speech therapists can administer in the home care setting. This article reflects one agency's success in changing people's lives by helping them swallow again.

Dysphagia (difficulty swallowing) affects more than 15 million adults in the United States. Certain diseases such as Parkinson's disease, stroke, and amyotrophic lateral sclerosis carry a 90% prevalence rate of dysphagia (DHHS, 2001). The rapid rise of esophageal cancer has also increased the dysphagia's prevalence.

Dysphagia occurs in two-thirds of stroke cases and causes the majority of respiratory infections in stroke patients. Additionally, even healthy aging affects swallowing (presbyphagia) and can have serious complications for older adults (Leslie et al., 2003).

Dysphagia's Impact on Patients - Not only does dysphagia affect patients' nutritional status, it also predisposes patients to complications such as aspiration pneumonia, bronchospasm, dehydration, and death from asphyxia and profoundly affects quality of life. Many of these patients experience social isolation due to their inability to eat with family and friends. The loss of swallowing can also lead to severe depression due to the interruption of patients' normal ways of life.

Because eating is such an important aspect of most patients' lives, regaining the ability to swallow can give back dignity, pleasure, and a sense of fellowship to patients who have suffered from this difficult complication. Most patients with dysphagia report "choking." Generally, this means that the bolus of food has entered the airway or that it "feels stuck" in the pharynx or esophagus.

The patient who has food in the airway is at much greater risk than the one whose food is "stuck" in the esophagus. Excess throat saliva is a common symptom of dysphagia because poor swallowing results in secretions pooling in the pharynx (Shapiro & Downey, 2004).

Complications due to dysphagia also increase healthcare costs by resultant readmissions, emergency room visits, extended hospital days, and the need for expensive respiratory and nutritional support. For the most severe cases, a tracheostomy for breathing and percutaneous endoscopic gastrostomy (PEG) tube for nutritional supplements are typical (Cook & Kahrilas, 1999).

Treatment - Traditional methods to treat dysphagia include conventional speech therapy, patient education, swallowing maneuvers, thickening liquids, and modifying patients' diet (e.g., cutting food into small mouthfuls, pureeing food so it passes more easily down the throat) (Cook & Kahrilas, 1999). However, these solutions offer limited options with varying degrees of success.

More often, dysphagia progresses to the point where medical management using a PEG tube becomes essential. Patients with a PEG tube experience personal discomfort and a drastic reduction in the quality of their lifestyles due to the inconvenience of tube feeding (VitalStim Therapy, 2004).

A Targeted Dysphagia Home Care Program for Sentara Home Care Services, Chesapeake, VA, became the first home health agency in the state to offer a new program that uses electrical stimulation to treat swallowing disorders. The new treatment, VitalStim, provides controlled neuromuscular electrical stimulation to strengthen the muscles used in swallowing. VitalStim is the only FDA-approved electrical stimulation for use with swallowing disorders.

Speech, physical, and occupational therapists who have completed a mandatory 3-day certification program offered by the Chattanooga Group, a division of Encore Medical (a medical equipment company specializing in rehabilitation equipment and patient supplies) can administer the treatment. The company posts updated schedules of training dates on its Web site: www.vitalstimtherapy.com . To become certified, course participants must:

- * demonstrate a desire and willingness to apply electrical stimulation,
- * actively participate in the training program,
- * complete a written examination (minimum score of 80%), and
- * demonstrate their ability to accurately and correctly apply the electrodes and operate the equipment.

Upon successful completion of the certification program, participants receive a certification number, which entitles the participant's agency to purchase and use the equipment and market the service using the VitalStim name. Healthcare agencies cannot purchase VitalStim equipment unless they have certified staff.

About the Product www.fda.gov - In June 2001, the United States Food and Drug Administration (FDA) cleared VitalStim as a device specifically manufactured to treat the swallowing musculature with electrical stimulation. The FDA approved electrical stimulation based on a study of more than 800 subjects treated with electrical stimulation with a significant success rate (). Additionally, the FDA continued to review more than 300 of these cases over 3 years and found sustained satisfying results. The FDA's conclusion: VitalStim is safe and efficacious in the treatment of dysphagia. Table 1 reports the percentage of full swallowing that was restored in the specific types of patients during the study.

Neurodegenerative	33.9
Cancer	50
Stroke	46.7
Iatrogenic	70
Respiratory	47.8
"Other"	57.1
Myopathy	100

Source: www.vitalstimtherapy.com.
Restored (2001)

Table 1. Percentage of Patients With Full Swallowing

New Dysphasia Treatment Home Care Program - In the home care setting, significant progress occurs when speech language pathologists combine electrical stimulation with traditional dysphasia therapy. The therapist uses electrical stimulation to activate the key swallowing muscles while implementing an active regimen of swallowing therapy to create or relearn functional muscle use patterns needed to initiate or reestablish swallowing. The treatment combines the physiological benefits of neuromuscular electrical stimulation and the clinical protocols used by the speech therapist to improve outcomes and quality of life while significantly reducing the costs of care (VitaStim Therapy, 2004).

How Does Electrical Stimulation Work? - There are three main effects of electrical stimulation: * *nerves* may depolarize, * *muscle* fibers may depolarize (leads to sensation and increased tone), and * *tissues* may polarize (changes may occur in the membrane permeability). Muscle stimulation with electrical stimulation demonstrates a definite positive training effect in terms of muscle strength, endurance, and coordination. Sufficient evidence shows that electrical stimulation improves muscle function provided the nerves that innervate the muscle are intact (Wijting & Freed, 2003). However, the marked improvements obtained through electrical stimulation require that patients maintain functional use following the electrical stimulation. This is why electrical stimulation always is accompanied by exercise therapy, such as oral motor and laryngeal strengthening exercises, and getting the patient to swallow (Wijting & Freed, 2003).

The Therapist's Process - 1. The therapist completes a functional assessment and a thorough patient history. 2. A modified barium study (MBS) should be performed before starting electrical stimulation to document the type and amount of aspiration the patient is experiencing. 3. To apply electrical stimulation, the patient's skin must be clean and dry (men must be clean-shaven). 4. The electrodes are firmly attached to ensure proper adhesion (see Figure 1).



Figure 1. Speech therapist using electrical stimulation for patient with dysphagia.

5. Electrode placement is based on MBS study results, which determine where the aspiration is occurring and whether the patient has muscle weakness in certain areas. Electrode placement is also determined by the size of the patient's neck, recent surgery sites on the neckband, and if a tracheotomy is present. 6. The patient receives approximately 10 to 14 treatments for 60 minutes per treatment (see Figure 2).

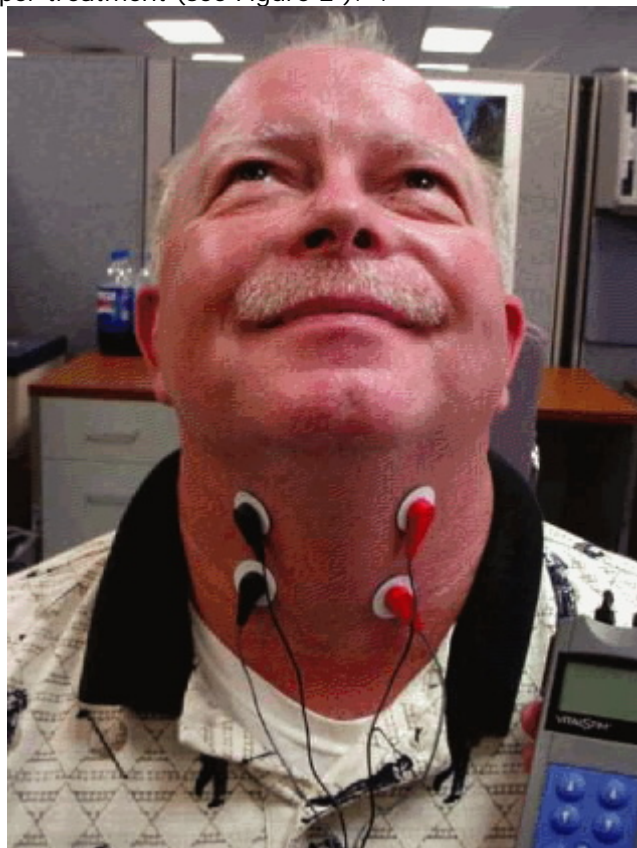


Figure 2. Correct placement of electrodes on patient

7. Each treatment is done during one home care visit. At Sentara, the speech therapist visits the patient daily, Monday through Friday, to deliver the treatments. Patient instruction covers the sensations felt during treatment, how the treatment will progress, and the patient's role in the process. During the stimulation, the patient practices swallowing and the therapist progresses the patient through the established dysphagia treatment protocol. Patients experience a tingling sensation as the electrical stimulation begins to cause the muscle to contract. The patient produces a swallow once the contraction occurs.

Case Study 1—Mr. A. – Mr. A. was diagnosed in 2002 with ALS. By November 2003, he could no longer talk, and his diet was downgraded to pureed-mechanical soft with liquids thickened to honey-pudding consistency. Even with the new food and liquid consistencies the patient still coughed during meals. Dysphagia intervention was conducted and electrical stimulation was used along with traditional treatment. After 20 treatments that lasted approximately 4 weeks, Mr. A. now eats burgers, fries, onion rings, and BBQ sandwiches. He is no longer aspirating, as evidenced by a normal MBS study. Previously, Mr. A.'s speech was slurred and unintelligible. Since the onset of electrical stimulation treatment, he is now able to speak words one at a time, and he verbally communicates decisions about what he wants to eat, drink, and wear.

It is imperative that electrical stimulation not be viewed as a panacea but as another tool to use in regard to dysphagia intervention. For some patients, it is their only hope of swallowing again.

His wife and caregiver are extremely happy because he is able to take a more active role in his care. Mrs. A. told the therapist that one of the greatest joys in her husband's life is eating, and that joy has been returned.

Case Study 2—Mr. D. - Mr. D. has had multiple sclerosis for several years and now has dysphagia. Prior to receiving electrical stimulation therapy, his sole means of obtaining nutrition was via PEG tube. The MBS revealed that he aspirated on thin and thickened liquids. He experienced extreme difficulty with foods and required multiple swallows and alternating solids and thickened liquids to avoid aspiration.

After 32 electrical stimulation treatments over 6 weeks Mr. D. can now eat all consistencies of food if thickened liquids are added, and he is able to tolerate slightly thickened liquids. He is now completely off tube feedings; he eats regular foods and can swallow oral medications. Mrs. D. related that her husband's outlook on life has changed significantly. Prior to therapy he was extremely depressed; however, being able to eat and socialize with the family has decreased his depression.

Case Study 3—Mrs. H. - Mrs. H., an 82-year-old female diagnosed with dysphagia resulting from supranuclear palsy, had severe aspiration while drinking thickened liquids. An MBS confirmed the aspiration and also showed a delayed swallowing reflex. Mrs. H. could not speak to her family or caregivers, resulting in a home care referral from her physician for electrical stimulation therapy. The speech therapist initiated a 5-day per week regimen of treatments. After only 10 treatments over a 2-week period, the patient was able to swallow less-thickened liquids and could speak words with 90% accuracy. By the 18th treatment Mrs. H. was eating foods of regular consistency. A follow-up MBS conducted after the 20th treatment showed that she was no longer at risk for aspiration. Mrs. H.'s family was able to hear their mother's voice once again, and the patient enjoyed meals with her family.

Is Electrical Stimulation Appropriate for Everyone With Dysphagia? - The following patients are **not** appropriate candidates for electrical stimulation treatments:

- * Patients who are severely demented and exhibit nonstop verbalization. This constant verbalization could result in aspiration during trials of oral intake.
- * Patients who exhibit significant reflux due to prolonged use of a feeding tube. Reflux should first be addressed successfully and then electrical stimulation can begin (Vital-Stim Therapy, 2004).

Reimbursement - Sentara provides electrical stimulation treatment service to Medicare, Medicaid, and commercial insurance under the standard home health speech therapist coverage criteria. For Medicare and certain commercial insurance products, patients are required to be homebound and in need of skilled home care services.

- * The agency is reimbursed under the contracted speech therapy per-visit rate set by commercial insurers.
- * The agency offers the service to private-pay patients who may not meet insurance criteria for coverage under home health.
- * The electrodes used for each treatment are billed as supply items and reimbursed as an established percentage of charges.
- * Under Medicare PPS, patients generally receive at least 10 therapy visits, increasing the agency's episodic payment. Coverage for electrode cost is bundled in the PPS payment. A home care agency can be financially successful with this program. More important, providing dysphagia patients the quality of life derived from a refreshing glass of water, a piece of chocolate, or a meal or conversation with their family is priceless.

REFERENCES - Cook, I. J., & Kahrilas, P. J. (1999). AGA technical review on management of oropharyngeal dysphagia. *Gastroenterology*, 116 (2), 455–478. [Context Link]

Department of Health and Human Services Food and Drug Administration (DHHS). (2001). *Freed bioelectric: Dysphagia treatment device*. Retrieved June 1, 2004 from www.fda.gov [Context Link].

Freed, M. L., Freed, L., Chatburn, R., & Christian, M. (2001). Electrical stimulation for swallowing disorders caused by stroke. *Respiratory Care*, 46 (5), 466–474.

Leslie, P., Carding, P., & Wilson, J. (2003). Investigation and management of chronic dysphasia. *British Medical Journal*, 326, 433–436. [Context Link]

Shapiro, J., & Downey, L. (2004). The evaluation and management of swallowing disorders in the elderly. *Geriatric Times*. Retrieved May 14, 2004 from www.geriatrictimes.com [Context Link].

VitalStim Therapy. (2004). *Hope for patients*. Retrieved June 1, 2004 from www.vitalstimtherapy.com [Context Link].

Wijting, Y., & Freed, M. (2003). *VitalStim Therapy Training Manual* (p. 103). Chesapeake, VA: Author. [Context Link]