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Dysphagia

Electrical Stimulation Therapy for Dysphagia: Descriptive Results of Two Surveys

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Abstract. Given the paucity of objective information on neuromuscular electrical stimulation approaches to dysphagia therapy, and the expanding utilization of this clinical approach, we designed and conducted two surveys to gather large-scale information regarding reported practice patterns, outcomes, complications, and professional perceptions associated with electrical stimulation approaches to dysphagia therapy. Self-administered questionnaires were mailed to 1000 randomly selected speech-language pathologists in each of two groups: (1) clinicians who had completed a formal electrical stimulation training course and were actively using these techniques, and (2) clinicians who were members of Special Interest Division 13 of the American Speech-Language and Hearing Association. Survey responses were anonymous and no incentive to respond was included. Acceptable response rates were achieved for both surveys (47% and 48%). Both groups of respondents were demographically similar and reported similar practice patterns. Stroke was the most common etiology of dysphagia treated with this approach. The majority of respondents identified no specific dysphagia criteria for application of electrical stimulation, used varied behavioral treatment methods, and did not follow patients beyond therapy. Clinicians reported positive outcomes with no treatment-related complications. Satisfaction with this approach was reported to be high among patients and professionals. Clinicians who did not report using these techniques indicated that they were waiting for more objective information on clinical outcomes and safety. Results of these surveys form an initial description of practice patterns and outcomes associated with electrical stimulation approaches to dysphagia therapy.

Key words: Dysphagia — Electrical stimulation — Survey — Deglutition — Deglutition disorders.

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Transcutaneous neuromuscular electrical stimulation is a recent and novel approach to treatment for swallowing disorders. The primary concept underlying this approach is that electrical stimulation will enhance muscle function during swallowing activity. When combined with functional swallowing exercises, the premise is that patients will experience improved swallowing ability. However, limited data are available to evaluate potential benefits or risks from this approach to dysphagia therapy. Two articles have been published to date [1, 2], but both have design and method limitations that reduce their impact and threaten the external validity of obtained results.

VitalStim® (The Chattanooga Group, Hixson, TN) is a commercially available neuromuscular electrical stimulation (estim) device cleared by the FDA for the treatment of pharyngeal dysphagia. VitalStim refers to a specific program of estim combined with behavioral therapy for swallowing disorders. The manufacturer of VitalStim has mandated that clinicians complete a formal training course on the VitalStim approach to dysphagia therapy before they will be allowed to purchase this device. According to the manufacturer, during the past two and a half years over 5000 clinicians have completed this training course and most have purchased equipment and gained clinical experience in this technique. Anecdotal information has emerged from this group of

practitioners regarding positive outcomes with the estim approach to dysphagia therapy. However, while anecdotal information may be encouraging, it offers little toward the scientific evaluation of any technique. Therefore, we completed a survey of this group of practitioners (Endusers) to obtain more objective information about practice parameters, clinical outcomes, and professional perceptions from estim therapy.

Because estim approaches to dysphagia are novel, we also sought to obtain information regarding professional perceptions of these techniques from individuals who have a declared interest in dysphagia but may not be using estim approaches in treatment. Toward that end, we randomly sampled and surveyed members of Special Interest Division 13 (SID 13) of the American Speech Language and Hearing Association (ASHA). SID 13 comprises professionals who have a self-selected interest in swallowing and swallowing disorders. As such, this group represents an appropriate reference for opinions and perspectives regarding various professional practices in the area of dysphagia.

Surveys are appropriate tools to gather large amounts of information in an efficient manner. Many recent surveys have been conducted in the area of dysphagia to identify practice patterns and professional perceptions of clinical practices [3–6]. At least two of these surveys identified discrepancies between clinical practices and supportive research [4, 6]. When clinical practice changes rapidly and impacts substantial numbers of practitioners, surveys are useful to describe those practices toward a better understanding of potential risks and benefits that may be expected from newly emerging clinical applications. Surveys also function to define or describe trends or variables that serve as the content for subsequent clinically relevant research [7]. The rapid growth in estim therapy applications for dysphagia in the absence of well-designed outcome studies supports the need to describe practice patterns and clinician-reported outcomes and complications. On a cautionary note, surveys may lack a high degree of specificity. Because they are designed to gather large amounts of information quickly, they often intentionally may be brief or focus on more global rather than specific details. In addition, surveys addressing patient care issues rely on the perceptions and recollections of respondents who provide patient care. Thus, any obtained results depict the information provided by the respondents rather than information obtained directly from patients receiving care. Despite these limitations, surveys can provide a substantial database that is useful in understanding new or changing clinical practices and their impact on patient care.

Collectively, our purpose was to survey two groups of clinical speech-language pathologists who had a specific interest in dysphagia. Our intent was to describe reported practice patterns, clinical outcomes, and complications associated with estim therapy applications. Our secondary goal was to gather information on clinician perceptions of estim as an approach to dysphagia therapy both from professionals who were using these techniques and from those who were not.

Materials and Methods

Subjects

Endusers

Enduser recipients were identified as speech-language pathologists who had completed a VitalStim training course at least six months before the initiation of the survey. A six-month interval was chosen to increase the probability that these clinicians had the opportunity to use this intervention strategy before completion of the survey. At the initiation of this study, a database maintained by the Chattanooga Group, manufacturers of VitalStim, contained 2022 names that met this criterion. From this database, 1000 names were randomly selected using a computer-generated random numbers list.

SID 13

SID 13 recipients were identified as a group of speech-language pathologists who declare a special professional interest in swallowing and swallowing disorders, but who do not necessarily demonstrate an investment in estim therapy approaches (i.e., had not necessarily completed specific training any estim treatment application). Not all SID 13 members permit dissemination of their name. Therefore, from an available database of 2256 entries, 1000 names were randomly selected by computer. These names and corresponding addresses were purchased from ASHA on ready-made mailing labels.

Survey Development

The Enduser survey was developed first and modified to accommodate SID 13 recipients. We selected initial survey items to represent four professional domains of information: sample demographics, practice patterns, outcome measurement, and satisfaction. Table 1 summarizes these domains and their components. In this table the number of questions listed for each domain reflects the final version of the survey, not the initial version. Though not a direct component of estim-based therapy for dysphagia, dilatation of the upper esophageal sphincter has been advocated by some individuals as an adjunct to these techniques. Therefore, we included questions on dilatation within the treatment protocol subarea of the practice patterns domain. The pilot version of the survey contained 37 questions. Questions included both multiple choice and binary responses. Content and face validity of the initial survey were evaluated by review of issues raised in published outcome studies [1, 2] and by a focus group ($n = 5$) of

Table 1. Summary of survey design

Domain	Subareas	No. of questions[a]
Sample Demographics		5
	Education	
	Clinical and Dysphagia Experience	
	Work Location	
	Case Load Demographics	
Practice patterns		15
	Estim Case Load Demographics	
	Criteria for Estim Application	
	Treatment Protocol	
Outcomes		7
	Improvement Characteristics	
	Failure Characteristics	
	Complications	
Satisfaction		2
	Patient Satisfaction	
	Professional Satisfaction	
Perceptions on Estim (SID 13 Recipients Only)		8
	Familiarity with Technique	
	Evidence to Support Utilization	
	Endorsement	

[a]Number of questions refers to the final surveys.

dysphagia-experienced (range = 10–30 yr) speech-language pathologists.

Field Testing

Construct validity was evaluated based on field testing of the initial survey with a pilot sample of Endusers. Sixty-five Enduser recipients were identified by the manufacturer based on their projected frequency of clinical application reflected in their volume of electrode purchases. The intent was to send the pilot survey to experienced clinicians who had a track record of clinical application with estim techniques. This pilot sample was used to field-test survey construction and cohesion. Before dissemination to this pilot sample, the initial survey was reviewed and approved by our local Institutional Review Board. Subsequently, the survey was mailed to this pilot group of Endusers with a letter of instruction and a stamped, addressed return envelope. Recipients were asked to return the completed survey within a week of receipt.

Based on 51 returned surveys from the initial 65 recipients (79% return rate), we evaluated the reliability of the initial questions. Reliability analysis was conducted using Cronbach's alpha to evaluate the internal consistency of survey items. The total alpha for this pilot survey was 0.748 and the average interitem correlation was 0.577. Items with the lowest item to total correlation values (<0.400) were reviewed. Identified items included entry criteria, protocol employed, protocol source, percent of patients dilated, therapist satisfaction with the protocol, therapist satisfaction with ease of delivery, size of dysphagia caseload, and patient improvement. These items were reviewed for wording, cohesion, and consistency of coding. Further descriptive analysis addressed questions perceived to be confusing or redundant. This analysis was based on formulation clarity, cohesion with other questions within a domain, response frequency, and nonresponse distribution. As a result of these initial analyses, 8/37 questions were omitted and 14/37 questions were modified. These changes improved internal consistency to alpha = 0.801, demonstrating acceptable reliability for the final survey. The resulting Enduser recipient survey included 29 questions that sampled information from the aforementioned four domains. Responses from this initial pilot survey of 65 Endusers were not included in the final analysis.

SID 13 Survey

The final Enduser survey was modified for SID 13 recipients to include items on perceptions of electrical stimulation in general as a technique for treating swallowing disorders. We included all of the items in the Enduser survey in the event that some SID 13 members were also using this technique, but we added eight questions for SID 13 recipients to reflect their perceptions of estim as a therapeutic approach for dysphagia. SID 13 recipients who identified themselves as users of an estim technique were asked to complete that portion of the survey that was *identical* to the Enduser survey. Those recipients who identified themselves as not using an estim technique were asked to complete only the items related to their perceptions of estim as a therapeutic approach. The revised Enduser survey and the SID 13 survey were reviewed and approved by the Institutional Review Board prior to dissemination.

Survey Dissemination and Return

Surveys were mailed to 2000 recipients along with a letter of instruction and a stamped, addressed return envelope. The letter of instruction introduced the survey and instructed the recipient to respond within one week. The letter of instruction also asked recipients to indicate if they had received and completed the alternate survey. For example, SID 13 members were asked to indicate if they had received and completed the Enduser survey. If so, they were asked to return the letter indicating completion of the alternate survey along with the blank survey form. All responses were anonymous and no incentives were offered to recipients to respond to the respective surveys. No contact was initiated with survey recipients following mailing of the surveys. We analyzed all surveys returned within two months of mailing. Any survey returned beyond this two-month window was not included in the analysis.

Data Analysis

Any survey returned with less than 80% of the items completed was excluded from the analysis. Responses from completed surveys were reviewed using descriptive methods. Demographic variables between responders on both surveys were evaluated using chi-squared tests.

Role of Funding Source

The sponsor of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Results

Response Rate

From the 1000 Enduser recipient surveys, 466 were returned for a 46.6% return rate. Of the returned surveys, 394 were sufficiently complete for analysis. This represents 85% of the returned surveys or 39.4% of the total sample (adjusted response rate). Of the 1000 SID 13 surveys, 480 were returned for a 48% return rate. Of returned SID 13 surveys, 450 were sufficiently complete for analysis representing 94% of returned surveys or 45% of the total sample (adjusted response rate).

Reasons for Nonresponse/Excluded Surveys

The primary reason for exclusion of Enduser surveys was incorrect mailing address ($n = 57$). Ten surveys were returned blank. One respondent each reported that they were not using an estim technique, had changed professions, or had filled out the alternate survey.

The primary reason for exclusion of SID 13 surveys was that the survey was returned blank ($n = 24$). Four recipients indicated that they had changed professions ($n = 2$) or had filled out the alternate survey ($n = 2$).

Sample Characteristics

Respondents to both surveys represented a group of clinicians with extensive experience in the provision of clinical services to adult patients with swallowing disorders. The majority of respondents in both groups were practicing at the master's level (Enduser = 97%; SID 13 = 95%) with more than one year of clinical experience (99% vs. 100%). In fact, the majority of both groups reported more than five years of clinical experience (76% vs. 97%). Likewise, experience with patients with swallowing disorders was high for both groups. Both groups reported a high percentage of respondents with more than five years of experience in the area of dysphagia (73% vs. 94%). SID 13 respondents reported significantly more years of both clinical and dysphagia-specific experience ($p < 0.0001$). The most frequently reported work environments included acute care hospitals (27% vs. 35%), rehabilitation hospitals (25% vs. 11%), skilled nursing facilities (11% vs. 14%), and clinicians who worked in multiple sites (25% vs. 23%). Overall, SID 13 respondents worked more in acute care and home health settings, while Enduser respondents were more likely to work in rehabilitation or long-term-care settings ($p < 0.0001$). The majority of both groups worked with both inpatients and outpatients (48% vs. 53%) with 62% and 69%, respectively, working exclusively with adult patients.

Reported Practice Patterns

A high proportion of respondents in both groups reported treating at least one patient with dysphagia during the six months before the survey (Enduser = 98% vs. SID 13 = 91%). In fact, a substantial number of clinicians in each group reported treating more than 50 patients during the six-month period preceding the survey (35% vs. 43%). Nearly all Enduser respondents (91%) were using electrical stimulation in the treatment of dysphagic patients. Conversely, only 10% of the SID 13 respondents reported using electrical stimulation in the treatment of dysphagia. The majority of estim users in both groups followed a specific therapy protocol (51% vs. 50%) that they learned at a VitalStim training course (69% vs. 61%). Table 2 summarizes the practice patterns reported by the respondents within each group.

Most respondents in both surveys reported that only 10% of their dysphagia cases were treated with electrical stimulation, but 10% of respondents indicated that they treated over 50% of their dysphagic patients with electrical stimulation. Stroke was the most common dysphagia etiology that respondents treated with electrical stimulation. Approximately half of respondents (57% vs. 47%) did not report specific criteria for applying an electrical stimulation approach to dysphagia therapy. The most frequently reported criterion was the presence of aspiration (25% vs. 21%). Most respondents treated patients on an hourly basis on either a three-day-per-week (39% vs. 40%) or a five-day-per-week (42% vs. 38%) schedule. Patients most frequently received a total of 11–15 treatment sessions (38% for both groups) or 16–20 treatment sessions (25% vs. 16%). A majority (90% for both groups) of respondents reported that they added therapy techniques beyond the basic estim approach learned within the continuing education course. Most commonly (58% vs. 55%) these additions involved combining various swallowing maneuvers, but frequently multiple techniques (31% vs. 38%), thermal-tactile stimulation (24% vs. 26%), or other techniques were employed. Over 95% of respondents reported completion of modified barium swallow studies before and following therapy. Long-term followup of patients after therapy was infrequent. When patients were followed, the most commonly reported followup intervals were at one (14% vs. 19%) and three (15%

Table 2. Estim practice patterns reported by respondents who use estim approaches in the Enduser and SID 13 surveys

	Enduser Survey (n = 394)		SID 13 Survey (n = 47)	
	Primary Responses	% Respondents	Primary Responses	% Respondents
Percent treated with electrical stimulation approach	10%	51%	10%	44%
	20%	21%	20%	24%
	30%	11%	30%	17%
Primary treatment population	Adult stroke	76%	Adult stroke	70%
Specific criteria for applying this approach	None	57%	None	47%
	Aspiration	25%	Aspiration	21%
Average session length	1 h	72%	1 h	58%
Sessions per week	3	39%	3	40%
	5	42%	5	38%
Total sessions per patient	11–15	38%	11–15	38%
	16–20	25%	16–20	16%
Added other therapy techniques	Yes	90%	Yes	90%
MBS before and after therapy	Yes	95%	Yes	95%
Followup	None	54%	None	40%
	1 month	14%	1 month	19%
	3 months	15%	3 months	19%
Dilatation completed	No	61%	No	80%

vs. 19%) months. Most respondents reported that their patients did not receive dilatation as part of the electrical stimulation treatment approach.

Reported Outcomes of Treatment

In general, estim users in both surveys reported positive outcomes and no treatment-related complications following treatment with electrical stimulation (Table 3). The most commonly reported post-therapy improvements were advanced oral diet and reduced aspiration. Oral intake level responses from the survey were converted to levels on the Functional Oral Intake Scale (FOIS) [7]. In this scale, lower levels indicate more restrictive oral intake while higher levels indicate less restrictive oral intake. Based on this scale, clinicians reported a trend of increasing oral intake following therapy. Change in median scale scores pre- vs. post-therapy in the Enduser survey was from 3 to 6. These values indicate that reported change progressed from tube dependent with consistent but insufficient oral intake to a regular diet with specific food avoidances. FOIS median change in the SID 13 survey was from 4 to 6. The SID 13 respondents indicated a similar ending point to the Enduser respondents, but they reported that their patients started at a slightly higher median level, i.e., total oral intake of a single consistency (blended or pureed) diet. In fact, a large percent of respondents in both surveys reported fewer tube-dependent patients following therapy. These outcomes were reported in the context of few complications. The majority of complications identified by clinicians were failure to change swallow or problems related to the progression of comorbid diseases. No swallow-related complications or complications related to the use of electrical stimulation were reported by either group of respondents. The majority of clinicians in both groups reported that patients with multiple comorbidities were most likely to fail in treatment. Other groups identified in both surveys as most likely to fail in treatment were patients with progressive neurologic disease or dementia.

Patient Satisfaction with Electrical Stimulation

Overall, clinicians reported high levels of patient satisfaction with their therapy experience. We categorized responses to reflect below-average satisfaction, average satisfaction, and above-average satisfaction. Based on this classification, the lowest satisfaction ratings were for the dilatation procedure. Otherwise, above average patient satisfaction ratings were reported by 80%–100% of respondents.

Professional Satisfaction with Electrical Stimulation

The majority of respondents in both surveys (range = 77%–96%) who were using an estim approach reported above-average satisfaction with these approaches. Conversely, few clinicians reported that they were unsatisfied with estim techniques. In general, clinicians in the Endusers vs. SID 13 group reported highest satisfaction levels with the

Table 3. Reported clinical outcomes of estim treatment in the Enduser and SID 13 surveys

	Enduser Survey (n = 394)		SID 13 Survey (n = 47)	
	Primary Responses	% Respondents	Primary Responses	% Respondents
Percent of patients improving following therapy	>50	75%	>50	78%
Primary outcome	Advanced oral diet	88%	Advanced oral diet	91%
	Reduced aspiration	80%	Reduced aspiration	84%
Patients tube dependent **before** treatment		51%		45%
Patients tube dependent **after** treatment		10%		9%
Complications	None	54%	None	55%
	Comorbid disease progression	24%	Comorbid disease progression	22%
	Lack of change in swallow	22%	Lack of change in swallow	22%
Patients most likely to fail in treatment	Multiple comorbidities	45%	Multiple co-morbidities	32%
	Progressive neurodisease	36%	Dementia	31%
	Dementia	34%	Head/neck cancer post RT	31%
	Severe brainstem stroke	24%	Progressive neurodisease	29%
Primary reasons for failure in treatment	Co-morbid disease progression	27%	Comorbid progression	32%
	No clinical response to treatment	20%	Patient discontinues	23%
	No change in swallow biomechanics	15%	No change in swallow biomechanics	18%
	Patients discontinues	14%	No clinical response to treatment	11%

equipment (82% vs. 89%), training (88% vs. 96%), treatment protocol (81% vs. 89%), and ease of treatment delivery (86% vs. 93%).

Perceptions of Electrical Stimulation as a Dysphagia Treatment Approach

Questions regarding professional perceptions of electrical stimulation as a dysphagia treatment approach were posed to only the SID 13 respondents who indicated that they were not using estim in dysphagia therapy. Approximately 90% of that sample reported that they had not or were not using an electrical stimulation approach in the treatment of dysphagia.

Of the SID 13 respondents, 74% expressed a professional interest in electrical stimulation as a treatment for swallowing disorders. However, 75% of this group had not attended a continuing education training course on electrical stimulation. The primary reason for not attending a training course was "not comfortable with available data" (35%). Sixteen percent (16%) of SID 13 respondents reported that they had previously used electrical stimulation in the treatment of swallowing disorders, yet only 10% reported that they were currently using this approach. The primary reasons for not using this approach were "not comfortable with published data" (34%), followed by "need to know more about the method" (24%). The majority of respondents (67%) indicated that they would like more information regarding "published data on outcomes" (92%), "published data on effectiveness from different investigators" (87%), and "safety data for different patient groups" (71%).

Discussion

Surveys are an efficient method by which to gather large amounts of information quickly. They can be used to provide important information on attitudes, beliefs, behaviors, practice patterns, and concerns of health care providers [9]. Likewise, surveys may lack detailed specificity and have the potential to suffer from various sources of bias. Still, given the limited amount of clinical data addressing neuromuscular electrical stimulation approaches in dysphagia therapy, and the growing number of professionals who are employing these techniques, surveys are an appropriate method to query these individuals with the goal of developing initial descriptions of practice patterns, clinical outcomes, and professional perceptions.

The samples for the two surveys are considered representative of two specific groups of professionals. Response rates of 47% and 48% would suggest appropriate representation of both groups with reduced nonresponse bias. To account for nonresponse bias, nonresponders should be compared with responders. Unfortunately, this action is not possible with an anonymous survey. Inability to evaluate characteristics of nonresponders should be viewed as

a limitation of this study. However, the response rates for the present surveys approximate those for large surveys to other health care providers [10] and are equal to or exceed response rates of recent, smaller surveys in the area of dysphagia [3–6]. Furthermore, it has been suggested that nonresponse bias in certain professional groups (e.g., physicians) may be less problematic than in the general population [9].

We intended to survey a group of clinical practitioners who had made an investment in estim as a therapy approach to dysphagia. This investment was reflected in completion of a training course for VitalStim, a specific estim therapy approach for dysphagia. Results indicated that over 90% of this group was actively using estim in at least 10% of their dysphagia patient caseload. The second survey was targeted at a group of professionals who had not made a specific investment in estim approaches to dysphagia but who had declared a professional interest in dysphagia by membership in Special Interest Division 13 of ASHA. Results indicated that 90% of this group was not actively using an estim approach in dysphagia therapy. Furthermore, these two respondent groups demonstrated similar demographics with minor exceptions in place of employment and years of experience. Given an acceptable rate of response for each survey, these results are deemed representative of the total population from which these survey samples were randomly selected. Finally, the 10% of SID 13 respondents who reported active use of estim as a treatment modality provided a form of cross comparison to the results of the identical Enduser survey. Descriptive results were similar for reported practice parameters, outcomes, and satisfaction across these subgroups.

Reported Practice Patterns

Among those respondents in both survey groups using an estim approach, clinicians reported similar practice patterns in the application of estim techniques in dysphagia therapy. The majority of clinicians acquired specific training in estim techniques from a formal VitalStim training course. However, despite apparent consistency in training, the present surveys have identified at least three aspects of practice that limit interpretation of reported outcomes: (1) lack of specific criteria for application, (2) combining a variety of treatment techniques, and (3) lack of followup. Each of these aspects has the potential to confound interpretation of treatment effects obtained from any intervention. Key issues are raised by these reported practice patterns, including which patients are best suited to estim approaches, what are the most effective treatment components, and how long do the reported effects of treatment last. From the present surveys, it is not possible to discern if these practice patterns are specific to estim applications or reflect current speech-language pathology health care practices or practices specific to dysphagia therapy. Further surveys or other investigative methods will be needed to clarify interpretative issues resulting from reported practice patterns.

This survey did not ask respondents details of estim applications. For example, the survey did not question specific electrode placements or amplitude of stimulation. Given results of recent studies on both healthy volunteers [11] and patients with chronic pharyngeal dysphagia [12], future studies, surveys or otherwise, should address issues of both electrode placement and amplitude of stimulation.

Reported Treatment Outcomes

Advanced oral diets and reduced aspiration were the primary reported benefits of therapy. Furthermore, these outcomes were reported in the presence of no treatment-related complications. Thus, as reported by experienced clinicians, patients treated by an estim approach to dysphagia demonstrated improved swallow ability in approximately10–20 treatment sessions and with no complications directly related to the treatment. This result must be interpreted in the context of other responses to the surveys. Specifically, a high percentage of clinicians employed a variety of clinical techniques in addition to an estim protocol. Moreover, patients treated with an estim approach received frequent and intensive therapy, often on a daily basis for at least an hour per session. Thus, while clinicians report positive outcomes following dysphagia treatment including electrical stimulation, those outcomes cannot specifically be attributed to the inclusion of electrical stimulation. Finally, the nature of surveys dictates that reported outcomes by a respondent group may or may not reflect actual outcomes in clinical practice. Recall bias is one limitation of any form of survey. This is counterbalanced to a degree by a relatively large sample of randomly selected respondents. However, the report of positive outcomes in these surveys does not substitute for appropriate effectiveness or efficacy studies. These questions will require prospective, controlled clinical studies. The present results are limited to the statement that the majority of surveyed clinicians report positive outcomes and no complications following dysphagia therapy that includes estim techniques.

Reported Satisfaction with Estim Techniques

Clinicians reported high degrees of patient satisfaction with the estim techniques. Likewise, clinicians reported high degrees of self-satisfaction with estim techniques. High satisfaction among patients is not surprising given the report of positive outcomes in patients treated with these techniques. The same statement may apply to clinician satisfaction. However, it is conceivable that clinician satisfaction ratings reflect more than positive patient outcomes. Clinicians rated all aspects of the estim approach with above-average satisfaction ratings. Thus, it appears that clinician satisfaction may have reflected positive experiences with an integrated clinical approach that systematically uses technology in an active treatment environment.

Reported Perceptions of Electrical Stimulation as a Dysphagia Treatment Modality

Interest in estim as a dysphagia treatment approach was high among the nonusers in the SID 13 sample ($>70\%$). However, two thirds of these respondents indicated that they were awaiting further information on estim before making any final decision on whether to use this approach clinically. These respondents sought published data on outcomes and safety data on the techniques. These responses may reflect the current state of knowledge regarding estim approaches for dysphagia therapy. Only two clinical outcome studies have been published on this topic [1, 2]. Both have limitations in design and methodology that impair their usefulness to clinical practitioners when making decisions regarding these techniques. The experienced respondents of the SID 13 survey acknowledge this paucity of meaningful information. Also, SID 13 respondents have clearly stated a need for more objective and systematic data on clinical outcomes and safety of estim techniques. Specifically, this group of professionals has identified a need for outcome data replicated by different clinical investigators and emerging from different clinical environments.

Responses regarding safety issues identified in the SID 13 survey may reflect limited understanding of available information. Both published studies [1, 2] identified no treatment-related complications. Furthermore, the Food and Drug Administration (FDA) has reviewed safety data on the VitalStim system and has listed no specific safety concerns related to this estim approach to dysphagia treatment [13]. Thus, some safety data are available by which to evaluate patient risk associated with estim techniques. Results of the present surveys lend support to these prior observations regarding the safety of estim techniques pertaining to dysphagia therapy.

Conclusions

Surveys are efficient tools for gathering information from large samples and are helpful in formulating concepts or hypotheses regarding evolving or newly developing fields of inquiry or clinical practice. Results from surveys should not be misconstrued as evidence for clinical effectiveness or efficacy of any technique. Rather, such results are helpful in describing current trends or opinions and in developing future research efforts. Enduser respondents reported positive clinical outcomes with no treatment-related complications from estim-based treatment. However, these professionals reportedly did not employ specific criteria for application of estim techniques, did not use standard treatment protocols, and frequently did not follow patients beyond the treatment period. The results of the present surveys suggest that respondents from an experienced sample of professionals who were not using estim techniques held primarily neutral perceptions of these techniques for treating dysphagia. The primary reason for reluctance of these respondents to adopt this clinical approach was the absence of meaningful information on outcomes and safety. To some degree, the results of these surveys address these professional concerns. However, survey data reflect a snapshot of practice patterns and outcomes and lack specific details. The next step will be to build specific clinical questions upon the results of these surveys and to design and conduct clinical studies to obtain details that will provide the meaningful and relevant information sought by professionals who practice in the area of dysphagia. Based on the current survey results, future clinical studies should specify criteria for inclusion in estim-based therapies, include application of a detailed and consistent clinical protocol, use standard and accepted outcome measures, and systematically follow patients beyond the immediate post-therapy period. The emergence of data from more rigorous and well-designed clinical outcome studies will advance the understanding of electrical stimulation approaches to dysphagia therapy.

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