Trends in Electric Stimulation for Facial Paralysis: Electronic Survey of Physical Therapists in Oregon and Rapid Review of the Evidence

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ID 28022

INTRODUCTION & OBJECTIVE

The effectiveness of electric stimulation (ES) for treatment of facial paralysis remains controversial. ES is believed to increase muscle use through targeted contraction and to enhance specificity of nerve regeneration to regain optimal fine-motor control of the facial muscles. However, the clinical community is divided in its use, with some providers advocating for it, while others strongly discourage it with concerns for worse recovery and reinforcement of abnormal movement patterns.

The purpose of this study was to examine current views of physical therapists (PTs) in Oregon towards ES therapy for facial paralysis via an electronic survey, and to compare these results to current medical evidence from human clinical trials

RESULTS

Of the 5,135 PTs and PTAs who were sent the survey, 193 responded, giving a response rate of 3.75%, and 155 provided full responses. Fifty-two of the respondents (27%) treat facial paralysis, of whom 21 (60%) use ES as a mode of treatment.

	Full respondents N=155	Respondents Treating Facial Paralysis: Not using ES (N=12)	Using ES (N=19)
Age			
>50 years	68(44%)	5 (42%)	13 (68%)
41-50 years	26 (17%)	2 (17%)	3 (16%)
31-40 years	41 (26%)	2 (17%)	2 (11%)
25-30 years	20(13%)	3 (25%)	1 (5%)
Years in practice			
>10	98 (63%)	7 (58%)	16 (84%)
5-10	31 (20%)	2 (17%)	2 (11%)
<5	26 (17%)	3 (25%)	1 (5%)
Practice			
Outpatient Clinic	96 (62%)	11 (92%)	16 (84%)
Acute Care Hospital	19 (12%)	-	-
Skilled Nursing Home	17 (10%)	-	2 (11%)
Home Health Center	13 (9%)	1 (8%)	-
Rehabilitation Center	5 (3%)	-	-
Other	21(16%)	1 (8%)	-
Not answered	6 (4%)	-	1 (5%)

Reasons for using ES were personal success with it (20/21, 90%), current scientific evidence (6/21, 30%), and referring physician and patients' request (6/21, 29%). **Reasons for avoiding** ES therapy included research showing it to be ineffective (6/12, 50%), risks outweighing the potential benefits (4/12, 33%), or lack of equipment or training (5/12, 40%).

Recommendations For ES therapy	Respondents (N=19)
Duration of paralysis	
Acute only (<6 months)	10 (50%)
Chronic only	0
Both Acute and Chronic	8 (40%)
Frequency:	
1 session/week	1 (5%)
2-3 sessions/week	14 (74%)
>4 sessions/week	4 (21%)
Duration of (months):	
1	5 (26%)
2	7 (37%
3	4 (21%)
>6	3 (16%)
Home ES equipment provided:	
Yes	4 (21%)
No	12 (63%)
Occasionally	3 (16%)

The majority of those treating patients with facial paralysis see fewer than two patients a month with facial paralysis (42/52, 91%), The majority of respondents who use ES recommended two to three sessions per week for one to three months. In terms of settings: eight therapists recommended biphasic stimulation and five recommended monophasic stimulation; six therapists recommended motor stimulation and two recommended subsensory stimulation.

CONCLUSION

This survey indicates physical therapists in Oregon are divided in their opinions and practices regarding the use of ES for facial paralysis. Of those respondents who treat facial paralysis 60% (21 of 35) chose to use ES. An equal proportion of respondents support using and not using ES for this purpose.

Of the current published controlled clinical trials examining ES for facial paralysis, some show weak benefit and some show no benefit and no harm. Interpretation of the results of these studies is limited by their size and quality.

Rapid Review:

We identified six human intervention trials with a total of 427 patients comparing ES to a control intervention for treatment of acute Bell's palsy. Three of these trials showed a slight benefit from ES,[1,3,5] while the other three did not show a difference in outcomes.[2,4,6]

The ES parameters included biphasic[2,5,6] and monophasic waveforms[1,3,4,6] with most using motor level stimulation;[1,2, 4-6] and one study using subsensory stimulation.[3]

Currently published trials have several limitations. All are small (n = 16 – 149) and underpowered to detect significant differences between groups. Average follow-up was 3 months, when further recovery and complications such as muscle spasms and synkinesis can occur beyond this time period. Most studies did not establish pre-determined prognostic factors for recovery at baseline, such as patient age or degree of paralysis, and therefore could not account for these confounders in their treatment allocation or analysis. The most commonly utilized outcome scale was the House Brackman (HB) scale, a clinician graded scale with low inter-rater reliability. In addition, evaluators were generally not blinded to treatment allocation. There was a high risk for selective reporting as drop-out rates, tolerability, and adverse effects do not appear to have been intentionally collected or consistently reported.

Future trials would benefit from adequate size and power, follow-up of at least 6 months, restriction to those at higher risk of poor outcome, and utilization of grading scales with higher inter-rater reliability that allow for more precise assessments of the different static and dynamic zones of the face, such as the newer digital eFACES.

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