Functional Electrical Stimulation for Treatment of Drop Foot in Stroke Victims

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ABSTRACT

The purpose of this study was to observe how FES can improve the side effect of drop foot resulting from a stroke. It was hypothesized that FES can improve the side effect of drop foot caused by a stroke. This study was a randomized, quantitative experimental design study that consisted of two groups whose participants were recruited from local physical therapy clinics: FES group (10 participants) and control group (10 participants). Intervention occurred for six weeks, five days a week for one-hour sessions. Outcomes were measured by passive and active ROM along with pain levels. Limitations in this study are the small sample size and the inability for the study to remain blinded. Future studies on this topic with larger sample sizes would be beneficial.

INTRODUCTION

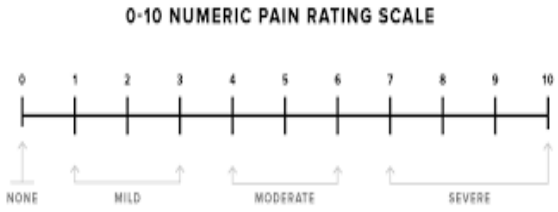
- In the US, 795,000 people suffer from a stroke. 20% of those people suffer from drop foot, a neuromuscular disorder that alters neural transmission resulting in the reduced active control of the foot.[1]
- Treatments include: physical therapy, an ankle foot orthosis (AFO), FES, and surgery in severe cases.[2]
- FES is a neurorehabilitation therapy technique used to increase strength, prevent atrophy in muscles, relax spastic muscles, and enhance participation of surrounding muscles.[3]
- FES is less invasive compared to surgery and does not require people to wear an AFO.

METHODS

Week 1
- Information session to review study information
  - Baseline measures of active and passive ROM obtained
  - Informed consent presented (N=20)
- Sessions for both groups began five days a week, for one hour each day.
  - Pain levels recorded using the NRS

Weeks 2-5
- Groups completed one on one sessions with a physical therapist
  - Control group: received standard treatment for drop foot
  - FES group: received standard treatment for drop foot, along with FES
- Pain levels recorded using the NRS

Week 6
- Completed final sessions, obtained post-treatment measures of active and passive ROM (N=20)
- Pain levels recorded using the NRS
- ANOVA data analysis used
- P-value set at <0.05 for scientific significance



OPERATIONAL DEFINITIONS

- Functional Electrical Stimulation (FES): functional electrical stimulation, a treatment using small electrical impulses to stimulate active movement in surrounding muscles and nerves
- Active and Passive Range of Motion: measured in degrees using a goniometer
- Numerical Rating Pain Scale (VRS): used to obtain pain levels after sessions, rating pain levels on a scale from 0-10

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