The Impact of a Sling on Mobility & Balance in Patients With a Flaccid Upper Extremity

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INTRODUCTION

A weak or flaccid upper extremity secondary to a cerebral vascular accident (CVA), brachial plexus injury (BPI) or other injury to the arm may negatively affect balance contributing to falls, decreased daily function and decreased independence. Restoration of walking in the community is the most important goal of most adults during rehabilitation (Bohannan et al, 1988). The aim of this study is to investigate dynamic and static balance and mobility while wearing a sling versus not wearing a sling. It is hypothesized that intervening with an arm sling during the flaccid period post-stroke or BPI will have a positive impact on a patient’s perception of balance and improve mobility (Acar et al 2010; Yavuzer et al 2002; Hoon et al 2010.)

METHOD

The University of California, San Francisco IRB approved this study and informed consent of obtained from each subject prior to participation in the study.

Subjects: Three subjects participated; two males and one female, all affected unilaterally on the right side. One subject suffered a stroke and the other two had BPIs, acute onset of the weakness or injury. The subjects ranged from 40-65 years of age and on average were three months post onset of the weakness to the upper extremity.

Apparatus: The outcome measures used: the Functional Reach Test, and the Timed Up and Go Test. The GivMohr sling is the only sling used.

Procedures: This study was conducted with one sole investigator to maintain measurement reliability. The same measuring devices were used with all subjects at all visits. A self-selected walking speed was used for the TUG.

Data Analysis: Each patient acted as his/her own control, thus data analysis consisted of comparison regarding measurements taken with and without use of the orthotic intervention. The data were then analyzed for statistical significance using a paired t-test. Statistical significance was accepted at a p level ≤ 0.05.

RESULTS

Upon comparison of the results of the FRT while wearing the sling versus not, it was observed the subjects were able to reach significantly farther while wearing the sling. Upon comparison of the TUG test results there was no significant difference between conditions.

DISCUSSION

The results of this study support the hypothesis that using the GivMohr sling as an orthotic intervention improves mobility, and balance. Although statistical significance was found in the functional reach test data, further data collection is necessary to establish clinical significance or power. Ultimately a larger research study on gait, mobility and balance related to wearing an arm sling will be able to report a clinical way to evaluate patients who may be indicated for a GivMohr sling and establish outcome measures for clinicians. As the field of orthotics moves toward outcome based treatment, establishing outcome measures within the clinic will provide records, which can be used for authorizations from insurance companies and retrospective studies.

CONCLUSION

This study reveals preliminary information indicating more research is needed regarding the efficacy and use of slings as an orthotic intervention, which may improve balance, gait mobility & independent function in performing ADLs.

REFERENCES