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Case Study: Efficacy of Physical Therapy on a Patient with CVA in Normalizing Gait and Shoulder Mechanics

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BACKGROUND

- ◆ Cerebrovascular Accident (CVA) is known as Stroke
- ◆ It is a damage to the brain due to an interruption of blood supply
- ◆ Two main types of stroke: ischemic stroke and hemorrhagic stroke

PURPOSE

- ◆ The purpose of this case report is to demonstrate the use of PT interventions to improve shoulder function and gait mechanics in a post CVA patient

CASE DESCRIPTION

Patient Profile

- ◆ 75 y/o male with an insidious onset of L ischemic CVA in 2017
- ◆ Comorbidities include Central and Obstructive Sleep Apnea, HTN, and Benign Prostatic Hyperplasia

Therapy History

- ◆ Has received PT, OT, and SLP intermittently for the past 2 years

Body Structure/Function Impairments

- ◆ Balance and coordination deficits
- ◆ R hemiparesis
- ◆ Impaired sensation RUE
- ◆ Decreased ROM or RUE
- ◆ RUE partial flexor synergy
- ◆ Difficulty speaking
- ◆ Right Homonymous Hemianopsia
- ◆ Decreased Endurance

Activity Limitations

- ◆ Difficulty walking greater than 1 mile
- ◆ Inability to reach overhead with the RUE

Participation Limitations

- ◆ Difficulty cooking independently
- ◆ Socializing in groups due to his speech impairment



Week 1 Initial Eval



Week 2 Gait Training

ACKNOWLEDGEMENTS

We would like thank the participant, NM III core and contributing faculty, and student workers.

PLAN OF CARE

Physical Therapy Frequency & Duration:

1x week / 4 weeks

Interventions:

Gait Training

- ◆ Hip adduction isometrics to decrease hip ER during gait
- ◆ Balance board to improve ankle muscle endurance and motor control
- ◆ Pre-gait training sequence from IC to LR with small ball underneath forefoot providing sensory cues
- ◆ Ambulating environment with various obstacles to improve R LE mechanics during stance and swing phase

Shoulder Interventions

- ◆ Scapular distractions and scapular upward rotation mobilization with movement
- ◆ GHJ inferior glides and GHJ post/inf. mobilizations to increase shoulder flexion and decrease pain

Patient Education

- ◆ Discussed pathophysiology of the condition and prognosis
- ◆ Discussed importance of performing HEP to help improve R UE/LE functional mobility.
- ◆ Educated family on importance of reminding patient on proper gait mechanics such as clearing the R foot during swing phase.

EXAMINATION FINDINGS

Body Structures and Functions	Initial Evaluation
Walking greater than 1 mile independently	Able to complete, but required hiking stick
Reaching overhead with the RUE	R shoulder flexion 90°
Outcome Measure	Initial Evaluation
TUG (no AD)	7 seconds
DGI (no AD)	18/24

OUTCOMES

Body Structures and Functions	Initial Evaluation	Discharge
Walking > 1 mile independently	Able to complete, but required hiking stick	Able to complete without hiking stick
Reaching overhead with the RUE	R shoulder flexion 90°	R shoulder flexion 172°
Outcome Measure	Initial Evaluation	Discharge
TUG (no AD)	7 seconds	7.3 seconds
DGI (no AD)	18/24	20/24

- ◆ After 4 weeks, patient showed significant improvements in functional gait and awareness of ankle motion

DISCUSSION AND CONCLUSION

- ◆ For a CVA patient, scapulohumeral rehabilitation and gait training are effective PT management options in increasing functional mobility and independence
- ◆ Although the patient's stroke occurred 2 years ago, significant functional improvements with shoulder ROM and improved quality of gait mechanics was achieved
- ◆ The outcome of this study can help guide future clinicians in decision making with CVA patients who need improvement with shoulder ROM and gait mechanics

CLINICAL RELEVANCE

- ◆ Strong evidence that scapulohumeral rhythm increases shoulder ROM
- ◆ Neuro Re-education on the ankle DF assists with decrease in foot drop and increase in endurance
- ◆ Implementing gait training will help with endurance and overall proper gait mechanics for a patient who had experienced a CVA

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Key Words: Stroke, shoulder, gait