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

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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

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 UE mechanics during stance and swing phase

Shoulder Interventions
- Scapular distractions and scapular upward rotation mobilization with movement
- GH 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.

OUTCOMES

Body Structures and Functions

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Initial Evaluation</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking greater than 1 mile</td>
<td>Able to complete, but required hiking stick</td>
<td>Able to complete without hiking stick</td>
</tr>
<tr>
<td>Reaching overhead with the RUE</td>
<td>R shoulder flexion 90°</td>
<td>R shoulder flexion 172°</td>
</tr>
</tbody>
</table>

Outcome Measure

<table>
<thead>
<tr>
<th>Initial Evaluation</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUG (no AD)</td>
<td>7 seconds</td>
</tr>
<tr>
<td>DGI (no AD)</td>
<td>18/24</td>
</tr>
</tbody>
</table>

- 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 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

REFERENCES

Key Words: Stroke, shoulder, gait