Use of a Task-Oriented Approach in the Physical Therapy Management of a Patient Following a Posterior Inferior Cerebellar Artery Stroke: A Case Report

Erika Derks, DPT Student
Department of Physical Therapy, University of New England, Portland, ME

Background
- 3.4% of the 600,000 strokes that occur annually in the United States are cerebellar strokes.¹
- Despite the rarity of cerebellar strokes, their impact can cause severe acute neurological morbidity.²
- The posterior inferior cerebellar artery (PICA) supplies the inferior portion of the cerebellum.³
- PICA infarct can lead to deficits in:
  - Gait and postural stability
  - Coordination
  - Cognition and attention
- The task-oriented approach has been demonstrated as an effective intervention for patients with cerebrovascular accidents, but limited research has been done on its use in patients with cerebellar stroke.

Tests and Measures Results

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<tbody>
<tr>
<td>Coordination: Meet to Sit</td>
<td>Right = Slow and inaccurate, Left = Slow but accurate</td>
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<td>Sensation: Discriminative Touch</td>
<td>Right ULELE = Normal, Left ULELE = Diminished</td>
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<tr>
<td>Functional Balance Grades</td>
<td>Static Sitting = Fair, stance to the right = Fair, Dynamic Sitting/Standing = Not tested due to safety concerns</td>
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| Gait Analysis | Moderate assistance with walking with visual cues, ataxic gait, scissoring pattern, unsteady and uncontrolled foot placement, heavy reliance on walker, trouble initiating gait |
| Communication | Dysarthria, word finding difficulties, difficulty following basic commands and holding conversation |

Interventions
- Interventions were performed using a multidimensional approach, with an emphasis on task-oriented rehabilitation. Interventions were progressed over time, including more complex neuromuscular re-education activities, increased ambulation distances, and decreased assistance.

Case Description and Examination
- 78-year-old female
- Right PICA stroke
- Received daily physical therapy over four and a half weeks in the acute rehabilitation setting
- Prior to admission, she was completely independent.
- During week three of her episode of care, she was diagnosed with a second stroke.

Outcomes

<table>
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<tr>
<th>Outcomes Measures</th>
<th>Admission</th>
<th>Discharge</th>
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<tr>
<td>Berg Balance Scale</td>
<td>5/5 = high fall risk</td>
<td>13/56 = high fall risk</td>
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<tr>
<td>Functional Independence Measure (FIM)</td>
<td>Total FIM score = 44 (18 lowest possible – 120 highest possible)</td>
<td>Total FIM score = 72 (18 lowest possible – 120 highest possible)</td>
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<td>Total FIM level = 2.44 (Maximal assistance)</td>
<td>Total FIM level = 4 (Minimal assistance)</td>
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Discussion
- Physical therapists within the acute rehabilitation setting commonly utilize the task-oriented approach for patients with cerebellar stroke. A similar intervention approach for this patient with a cerebellar stroke appears to have been beneficial. The patient had improved functional mobility at the time of discharge, despite having a second stroke. This may warrant further studies on this intervention method.

Acknowledgements
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References: