

Outpatient Physical Therapy Management of a Patient Following a Severe Left Middle Cerebral Artery Infarction: A Case Report



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INNOVATION FOR A HEALTHIER PLANET

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Background

- A cerebral vascular infarction (CVI) is a loss of blood flow to an area of the brain, which results in cell damage and/or death.¹
- The most common occluded artery is the middle cerebral artery (MCA).²
- The incidence of falls within one year following a CVI can be as high as 42-60%.³
- CVIs are a leading cause of long-term disability in the United States.³
- CVIs account for 1 in every 19 deaths in the United States.^{1,2}
- Common impairments include: abnormal/slow gait, weakness, sensory loss, and decreased endurance.¹
- Common gait abnormalities include, genu recurvatum, foot drop, decreased stance phase, and foot slap on the involved side.^{1,4}
- Evidence based interventions for improving function following a CVI include: gait training, stair training, lower extremity (LE) strengthening, balance training, and aerobic exercise.^{1,5}

Purpose

- The purpose of this case report was to describe the outpatient physical therapy (PT) management of a patient (pt) who experienced a severe left MCA infarction.

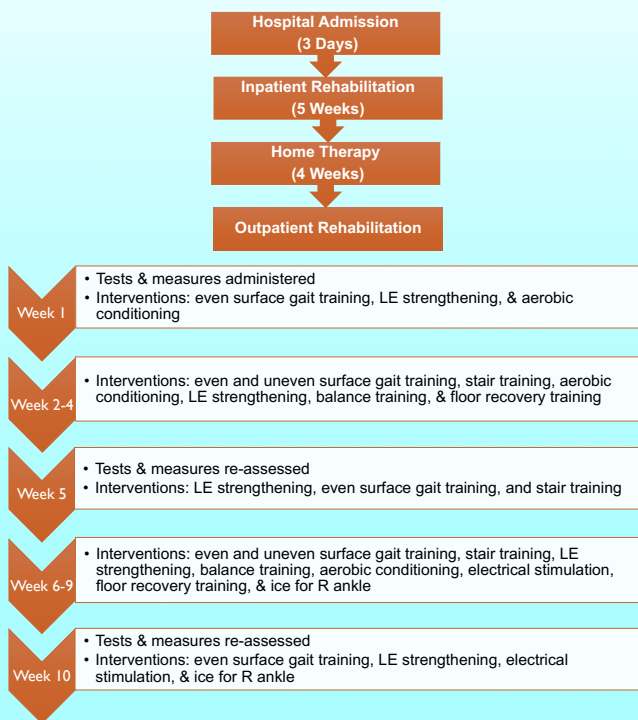
Case Description

- Pt was a 59 year-old Caucasian female who was referred to outpatient PT 3 months following a severe left MCA infarction.
- Pt's medical history included hyperlipidemia and atrial fibrillation.
- Pt presented with expressive aphasia, right (R) sided weakness and sensory loss, impaired gait, and impaired balance.
- At the time of the evaluation, pt was functionally dependent for ADLs and IADLs, only able to walk short distances with a hemi-walker, relied on a wheelchair for community mobility, and unable to work.
- Her main concerns were to improve her mobility, regain her functional independence, and return to work.

Test and Measures

Test/Functional Outcome Measure	Baseline Results				
Berg Balance Scale	36/56 = fall risk <45				
Six-Minute Walk Test	total distance = 210 feet with forearm crutch gait speed = 0.178 m/s below age norms				
Manual Muscle Testing Hip	<table border="1"> <thead> <tr> <th>Right LE</th> <th>Left LE within functional limits</th> </tr> </thead> <tbody> <tr> <td>flexion: 2+/5 extension: 3-/5 abduction: 3-/5 adduction: 3-/5</td> <td></td> </tr> </tbody> </table>	Right LE	Left LE within functional limits	flexion: 2+/5 extension: 3-/5 abduction: 3-/5 adduction: 3-/5	
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Knee	flexion: 3-/5 extension: 3/5				
Ankle	dorsiflexion: 3-/5 plantarflexion: 2+/5 eversion: 2+/5				
Observational Gait Assessment	significant R genu recurvatum, foot slap, step-to gait pattern, foot drop, and LE adduction				

Timeline



Interventions

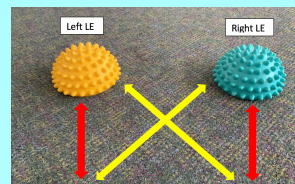


Figure 1: balance training exercise



Figure 2: aerobic conditioning Nu-Step

Outcomes

Test/Functional Outcome Measure	20 th Visit Results				
Berg Balance Scale	49/56 = low fall risk				
Six-Minute Walk Test	total distance = 310 feet with straight cane gait speed = 0.26 m/s below age norms				
Manual Muscle Testing Hip	<table border="1"> <thead> <tr> <th>Right LE</th> <th>Left LE within functional limits</th> </tr> </thead> <tbody> <tr> <td>flexion: 3+/5 extension: 3+/5 abduction: 3+/5 adduction: 3+/5</td> <td></td> </tr> </tbody> </table>	Right LE	Left LE within functional limits	flexion: 3+/5 extension: 3+/5 abduction: 3+/5 adduction: 3+/5	
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Knee	flexion: 4/5 extension: 3+/5				
Ankle	dorsiflexion: 4/5 plantarflexion: 3+/5 eversion: 3/5				
Observational Gait Assessment	No R genu recurvatum, occasional foot slap, half step-through pattern, no foot drop				

Discussion and Conclusion

- The pt may have benefitted from the selected interventions as evident by improved R LE strength, a reduction of fall risk, and a significant improvement in gait quality.
- Gait speed did not significantly improve, however pt progressed from using a hemi-walker to a straight cane.
- Perhaps pt would have benefitted from body-weight supported treadmill training in addition to over ground gait training to allow for more practice before she fatigued.
- The pt continued to receive outpatient PT beyond the 20th visit.

Acknowledgements

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References

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