Tissue Plasminogen Activator Effects on Stroke and Physical Therapy Outcomes in Acute Care: A Case Report
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Introduction

- An ischemic stroke occurs when blood flow to an area of the brain is restricted by a blood clot1.
- Symptoms include:
  - Numbness or weakness on one side of the body
  - Facial droop
  - Flaccidity
  - Decreased balance
  - Ataxia
- Patients who can identify these symptoms within 3 hours of their onset can be eligible to receive tissue plasminogen activator (tPA).2
- tPA works by dissolving the blood clot to enhance blood flow in the brain which helps decreases the damage caused by the stroke.2
- Patients who receive tPA in the effective window often have less disability from their stroke than their counterparts who did not receive the drug.2
- The purpose of this case report is to display the positive effects of tPA and physical rehabilitation following a stroke in the acute care setting.

Case Description

- 83-year-old Caucasian female
- Chief Complaints:
  - Left facial droop
  - Left sided weakness and numbness
  - Emergency department assessment
  - tPA administered within 1-hour of onset
  - MRI confirmed an acute right thalamic stroke
- Physical therapy evaluation of strength, sensation, coordination, and functional mobility

Timeline

Day 1
- Blood clot in cerebral artery causing a stroke
- Blood clot breaks off and travels down the carotid artery
- Disease carotid artery
- Normal carotid artery

Day 7
- Physical therapy evaluation
- More medical work-up
- tPA administration
- Observation by medical team

Day 5
- No physical therapy interventions
- Discharge planning
- Right Carotid Endarterectomy performed

Day 4
- Physical therapy treatment with physical therapy assistant

Day 2
- Observation by medical team

Day 3
- Physical therapy evaluation
- More medical work-up

Outcomes

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Before tPA</th>
<th>At Discharge</th>
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</thead>
<tbody>
<tr>
<td>Strength</td>
<td>Left UE: 2/5</td>
<td>Left UE: 4/5</td>
</tr>
<tr>
<td>Sensation</td>
<td>Numbness/tingling</td>
<td>Light touch intact but hypersensitive left lateral thigh</td>
</tr>
<tr>
<td>Coordination</td>
<td>Unable to perform</td>
<td>Slow and decreased accuracy on left</td>
</tr>
<tr>
<td>Bed mobility</td>
<td>Not tested-was independent before admission</td>
<td>Supervision</td>
</tr>
<tr>
<td>Transfers</td>
<td>Not tested-was independent before admission</td>
<td>Minimum Assistance with flat foot and slight genu recurvatum on the left, and scissoring gait with dual tasks</td>
</tr>
<tr>
<td>Gait</td>
<td>Not tested-was independent with no assistive device before admission</td>
<td>1- No significant disability despite symptoms</td>
</tr>
<tr>
<td>Modified Rankin Scale</td>
<td>0- no symptoms (day before admission)</td>
<td>40.47% decrease in function</td>
</tr>
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Discussion

- This case report displayed how tPA decreased the impairments experienced by this patient after the onset of a stroke.
- The improvements were maintained throughout the patient’s hospital stay and a carotid endarterectomy was performed.
- The patient was able to be discharged home and receive home health PT.
- This patient had several positive prognostic indicators, so it is difficult to determine whether her positive outcome was solely impacted by the tPA.
- This case report demonstrates the importance of early stroke symptom recognition in order to receive tPA to decrease functional impairments and to have better outcomes with physical therapy.

References