Regaining Independence in Ambulation for a Visually Impaired Patient with Rhabdomyolysis: A Case Report

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Background

- Myopathic condition with an acute onset that causes a rapid degradation of muscle tissue.
- Significantly elevated release of creatine kinase (CK) a muscle enzyme that is a cellular component in healthy muscle tissue, into the blood stream.
- Common causes: muscle trauma (injury/strenuous activity), drug/alcohol abuse, medications, toxins, infections, and extended periods of immobility.
- Hallmark signs/symptoms: Muscle pain, swelling, weakness, and dark “tea-colored” urine.

Initial Functional Mobility

### Transfers
- **Sit to Stand**
  - Contact guard assist
  - Use arms for control, poor foot placement for leverage to stand

### Bed Mobility
- Independent with roll/turn, sit to supine, and scoot/bridge

### Ambulation
- **Level Surface**
  - Ambulated 100 feet with bilateral single point cane and stand by assist
  - Kyphotic posture, wide base of support, slight bilateral knee flexion/hip external rotation
- **Uneven Surface**
  - Ambulated 50 feet with bilateral single point cane and minimum assistance
  - Kyphotic posture, wide base of support, slight bilateral knee flexion/hip external rotation
- **Stairs**
  - Negotiated 3 steps on porch stairway with single point cane, railing, and minimum assistance
  - Unsteady step by step pattern leading with left foot, had difficulty clearing right foot when ascending steps due to foot drop

Interventions

- **Week 1-2**
  - Lower extremity Range of Motion/Strength (Home Exercise)
  - Calf stretch (Home Exercise)
  - Sit to stand transfer training
  - Level surface ambulation
  - Stair training
  - Education (hydration/energy conservation)

- **Week 3-5**
  - Level surface ambulation
  - Stair training
  - Uneven surface ambulation

- **Week 6-9**
  - Level surface ambulation
  - Stair training
  - Uneven surface ambulation
  - Education (hydration/body mechanics)
  - Modification of walker to use white cane

- **Week 10-15**
  - Refining ambulation on all surfaces
  - Education on energy conservation based on pain presentation

Goals for Physical Therapy

<table>
<thead>
<tr>
<th>Short Term Goal (4 weeks)</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent with home exercise program</td>
<td>Met</td>
</tr>
<tr>
<td>Independent sit to stand transfer</td>
<td>Met</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long Term Goal (Discharge)</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulate 300 feet independently with least restrictive device</td>
<td>Partially Met</td>
</tr>
<tr>
<td>Independently negotiate 1 flight of stairs with least restrictive device</td>
<td>Met</td>
</tr>
<tr>
<td>Bilateral lower extremity strength 4+/5</td>
<td>Not Met</td>
</tr>
</tbody>
</table>

Outcomes

- Independent with home exercise, sit to stand, and negotiating stairs with least restrictive device
- Stand by assistance with walker outdoors on uneven surfaces
- Achieved 16/28 on Performance Oriented Mobility Assessment (POMA), putting him below the cutoff score >19. This indicated that he is a fall risk.

### Discussion

- Improved functional mobility to independent transfers, level surface ambulation, and stairs. Stand by assist for uneven surface ambulation.
- On waiting list for private duty per physical therapist recommendation
- Limitations: lack research for geriatric populations, no ramp to bring walker in/out home
- Positive prognostic factors: adherence to therapist recommendations, non-familial support
- Negative prognostic factors: multiple comorbidities, non remitting bilateral calf ache

### Acknowledgements

- The author acknowledges the patient for his participation in the case report, Matthew Somma, PT, DPT, MTC, CSCS for assistance with case report and conceptualization, and Erin Faulter, DPT for supervision and assistance with patient management

### References

- **Background**

- **Discussion**

- **Outcomes**

- **Patient Description**
  - Year old male
  - Suffered traumatic fall in the home prior to referral
  - Upon medical evaluation, diagnosed with rhabdomyolysis
  - Relevant history: Legal blindness (LB) secondary to Leber’s hereditary optic neuropathy, hypertension, peripheral neuropathy, chronic obstructive pulmonary disease, patellar tendinopathy
  - Primary complaints: weak, shaky, easily fatigued, felt unsafe walking beyond driveway
  - Lived home alone with large dog, but had neighbor who helped regularly
  - Nondrinker and former smoker

- **Initial Functional Mobility**
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- **Interventions**
  - Level surface ambulation
  - Stair training
  - Uneven surface ambulation
  - Education (hydration/energy conservation)
  - Gait/stair mechanics
  - Adaptive equipment management
  - Home Exercise Plan modification

- **Goals for Physical Therapy**
  - Independent with home exercise program
  - Independent sit to stand transfer

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