Gait Training a Patient who was Deaf with Multiple Total Hip Revisions: A Case Report

Natalie Slattery, BS, DPT Student; Kirsten Buchanan, PhD, PT, ATC
University of New England, Department of Physical Therapy, Portland, Maine

Background

- 93% of patients who have a total hip arthroplasty (THA) are due to end-stage osteoarthritis.
- 15-30% of patients who survive a stroke continue to live with a long-term disability.
- The most common abnormal gait pattern after surviving a stroke is due to hemiparesis.
- Patients who are deaf require greater visual and tactile cueing during gait training.
- Gait training has been shown to normalize gait patterns and increase functional mobility in patients after a total hip replacement (THR), THA revision and/or stroke.
- There is a lack of research investigating the optimal gait training plan of care (POC) for a patient with a THR, THA revision, stroke, and deafness.

Case Description

- 77 year old woman, deaf since 8 months old
- Admitted to a skilled nursing facility after a left THA revision with residual left hemiparesis.
- Required to wear an abductor brace at all times, except for skin care.
- Past medical history: osteoarthritis in left and right hip and lumbar spine, elective left posterior approach THA, 4 left hip dislocations, right arterial ischemic stroke, essential HTN, stenosis of left subclavian artery.
- Initial evaluation showed: decreased bilateral lower extremity strength, increase in pain level at rest and with activity, decreased balance, decreased functional mobility.
- Received PT for 60-70 minutes 6-7 times/week for 4 weeks.

Interventions

<table>
<thead>
<tr>
<th>Gait Training</th>
<th>Therapeutic Exercise</th>
<th>Therapeutic Activity</th>
<th>Neuromuscular Re-Education</th>
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<tbody>
<tr>
<td>Amb with FWW</td>
<td>Supine: SLR, pelvic bridging</td>
<td>Bed Mobility: sit to and from supine &amp; bilateral rolling</td>
<td>Static &amp; dynamic balance: seated progressed to standing in // bars then to FWW</td>
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<tr>
<td>Amb without AD with hallway railing 28 ft</td>
<td>Seated: LAQ, hip flex, hamstring curls with 2.5 #</td>
<td>Transfers: sit to and from stand, SPT with FWW</td>
<td>Dynamic balance training during gait: stepping over and around obstacles with FWW</td>
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<td>Ascending/descending 3 – 6 inch steps with bilateral rails</td>
<td>Standing: (in // bars progressed to FWW) bilateral hip abd, flex, ext, heel raises, mini squats</td>
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<td>Amb up/down outdoor ramp &amp; curb step with a FWW</td>
<td>Side stepping utilizing hallway railing, 28 ft progress to 44 ft</td>
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<td>Amb with FWW around fixed objects in close proximity</td>
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Purpose

The purpose of this case report was to investigate a comprehensive PT POC for a patient who is deaf and had a THR, a THA revision, and a subacute stroke.

Outcomes

<table>
<thead>
<tr>
<th>Functional Mobility</th>
<th>Initial Evaluation</th>
<th>Discharge</th>
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</thead>
<tbody>
<tr>
<td>Patient to Sit</td>
<td>Minimal Assistance</td>
<td>Modified Independent</td>
</tr>
<tr>
<td>Sit to Stand</td>
<td>Supervision</td>
<td>Modified Independent</td>
</tr>
<tr>
<td>Stand/Pivot Transfer</td>
<td>Supervision</td>
<td>Modified Independent</td>
</tr>
<tr>
<td>Gait</td>
<td>20 feet with front-wheeled walker, contact guard assistance</td>
<td>300 feet with front-wheeled walker, Modified Independent</td>
</tr>
<tr>
<td>Stairs</td>
<td>Dependent, 0 steps</td>
<td>Modified Independent, 3 steps</td>
</tr>
<tr>
<td>Ramp</td>
<td>Dependent</td>
<td>Supervision</td>
</tr>
</tbody>
</table>

Discussion

- The patient demonstrated improvements in strength, endurance, pain level, functional mobility and gait quality.
- The patient met all short and long-term goals which allowed her to return home.
- The patient seemed to benefit from a comprehensive PT POC which focused on gait training and tactile cueing with an abductor brace.

Conclusion

- A comprehensive PT POC which focused on gait training and tactile cueing with an abductor brace was effective for a 77 year old patient who had a THR, THA revision, and a subacute stroke.
- Future research on the combined PT management of THR, THA revision, subacute stroke and deafness in a larger population of older adults is recommended.

Acknowledgments

The author acknowledges Dr. Kirsten Buchanan PhD, PT, ATC, for assistance with case report conceptualization, Jennifer Robleby PT, for supervision of the case, and the patient for their participation in the case report.

References


Figure 1: Timeline of treatment

Figure 2: Patient wearing abductor brace

Figure 3: Patient walking with abductor brace using FWW