Functional Mobility for a Patient with Myelodysplastic Syndrome, Chronic GVHD, and Corticosteroid Use: A Case Report
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Background:

Myelodysplastic Syndrome (MDS):
- MDS is often called pre-leukemia as 1 in 3 individuals will develop Acute Myeloid Leukemia
- A type of cancer that causes blood producing cells in bone marrow to function abnormally
- Causes normal blood cells to die earlier

Graft-Versus-Host-Disease (GVHD):
- Develops in approximately 70% of patients following an allogenic stem cell transplant
- Donor’s cells attack both the malignancy and the patient’s healthy cells
- Treatment for acute and chronic GVHD (cGVHD) is often corticosteroids
- Can have detrimental effect on muscle strength, immune function, weight, and mood

Corticosteroids:
- High-dose chemotherapy to kill cancer cells and weaken immune system.
- The patient takes medications to prevent adverse effects, GVHD, and assist in recovery

Purpose:
- The purpose of this case report is to describe PT interventions for an individual with a cancer diagnosis who received an allo-SCT and subsequently had long-term complications associated with cGVHD, long-term corticosteroid use, and cancer survivorship.

Case Description:
- 73-year-old male admitted to MD Anderson Cancer Center with progressive weakness in bilateral lower extremities and loss of bowel/bladder function.
- Initial diagnosis as paraplegia with loss of bladder/bowel function and Brown Sequard Syndrome.
- Diagnosis changed to paraplegia with unclear etiology
- Patient was a retired chemical engineer who enjoyed spending time with his family and tending to his yard.
- He lived in a 2-story home, bedroom/bathroom on the main level with no stairs to enter.

Patient room at MD Anderson Cancer Center

Stem Cell Transplant:

Step 1: Cell Collection
• In an allogenic stem cell transplant, a matched donor will donate the stem cells.

Step 2: Treatment
• Patient undergoes high-dose chemotherapy to kill cancer cells and weaken immune system.

Step 3: Transfusion
• The stored stem cells are introduced to the patient in hopes they will cause a graft-versus-tumor-effect.

Step 4: Recovery
• The patient takes medications to prevent adverse effects, GVHD, and assist in recovery.

Timeline:

Past Medical History: 73-year-old male diagnosed with MDS 6 years prior to initial evaluation (IE). Allogenic stem cell transplant 2 years prior to IE with subsequent GVHD treated by long-term corticosteroids

Progression of Interventions:

Seated Strength
- Marches, long arc quads, ankle D/L/P, hip abduction with knee extension, hip adduction

Standing Strength
- Marches, heel raises, knee flexion, hip abduction, hip extension

Functional Mobility
- Ambulation, transfers, mini squats, sit to stand

Balance
- Narrow base of support, tandem stance, removing arm support, eyes open & closed, single leg stance

Outcomes:

Table 1: Tests & Measures

<table>
<thead>
<tr>
<th>Tests &amp; Measures</th>
<th>IE Results</th>
<th>Progress Note Results</th>
<th>Inpatient Rehab Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Touch Sensation</td>
<td>WNL</td>
<td>WNL</td>
<td>WNL</td>
</tr>
<tr>
<td>Manual Muscle Testing</td>
<td>Decreased strength R &gt; L</td>
<td>Decreased strength R=L</td>
<td>Decreased strength R &gt;L</td>
</tr>
<tr>
<td>Six Sit to Stand</td>
<td>Unable to assess</td>
<td>16.3 seconds</td>
<td></td>
</tr>
<tr>
<td>FIM Bed Mobility</td>
<td>5 (SBA)</td>
<td>5 (SBA)</td>
<td></td>
</tr>
<tr>
<td>FIM Transfer Distance</td>
<td>4 (CGA/Min Assistance)</td>
<td>6 (Mod-I)</td>
<td>5 (SBA)</td>
</tr>
<tr>
<td>FIM Ambulation</td>
<td>2 (Total Assist)</td>
<td>1</td>
<td>5 (SBA)</td>
</tr>
<tr>
<td>FIM Stairs</td>
<td>0 (Unable to assess/perform)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AM-PAC Basic Mobility</td>
<td>18/24</td>
<td>20/24</td>
<td>20/24</td>
</tr>
</tbody>
</table>

WNL = within normal limits, R = right, L = left, SBA = stand by assistance, CCA = contact guard assist, FIM (Functional Independence Measure)

Discussion:
- Potential implications for clinical practice include focus on strength and ADL function in oncology rehab.
- Further research is required to understand and alleviate the common complications that result in decreased function and mortality such as GVHD and chronic corticosteroid use.
- Physical therapists play a critical role in functional mobility in cancer survivors.

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References: