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.
- Develops in approximately 70% of patients following an allo-SCT.
- Donor’s cells attack both the malignancy and the patient’s healthy cells.
- Treatment for acute and chronic GVHD is often corticosteroids.
- Can have detrimental effect on muscle strength, immune function, weight, and mood.

Corticosteroids:
- Treatment for acute and chronic GVHD (cGVHD) is often corticosteroids.
- Can have detrimental effect on muscle strength, immune function, weight, and mood.

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.

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 Exercises:
- Marches, long arc squats, ankle DF/PP, hip abduction with knee extension, hip adduction.

Standing Strength Exercises:
- 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.

Stem Cell Transplant:
- In an allogenic stem cell transplant, a matched donor will donate the stem cells.
- Patient undergoes high-dose chemotherapy to kill cancer cells and weaken immune system.
- The stored stem cells are introduced to the patient in hopes they will cause a graft-versus-tumor-effect.
- The patient takes medications to prevent adverse effects, GVHD, and assist in recovery.

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 &gt; L</td>
<td>Decreased strength R &gt; L</td>
</tr>
<tr>
<td>SX 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>Ambulation Distance</td>
<td>2 ft x 1, 150 ft x 2 ft</td>
<td>200 ft x 1, 150 ft x 2 ft</td>
<td></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 or 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>

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 for cancer survivors.

Acknowledgements:
- The author acknowledges Melanie Migues PT, DPT, for supervision and oversight of patient care and the patient for participating.

References:

5. SBA = stand by assistance, CCA = contact guard assist, FIM = Functional Independence Measure.