Acute Care Outcome Measures in a Patient Status-Post Right Total Knee Arthroplasty (TKA) Following a Left TKA Staged Five Weeks Apart: A Case Report

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Background
- Total knee arthroplasty (TKA) is one of the most frequently performed orthopedic procedures in the U.S.1
- Osteoarthritis (OA) is the most common reason for a total knee arthroplasty.1
- Cartilage and bone is removed from the distal end of the femur and proximal end of the tibia and is replaced with metal alloy components that recreate the joint surface.1
- Some evidence suggests that staging bilateral TKA within three months of each other may increase the patient’s risk for mortality and complications.2

Purpose
- The purpose of this case report was to document acute care outcome measures in a patient who underwent bilateral TKA staged five weeks apart and to assess the possible implications that a short staging period might have on the patient’s ability to recover.

Case Description
- 58-year-old male
- Occupation: high school woodshop teacher, previously worked as a carpenter and a manual laborer in a factory
- Baseline mobility: independent with activities of daily living (ADL) and instrumental activities of daily living (IADL); however limited due to pain
- Activity limitations and participation restrictions: donning and doffing socks and shoes, walking up and down stairs, walking on hard surfaces, walking long distances, unable to lift heavy objects and unable to go biking
- Previous treatment: two cortisone shots within the past six months prior to surgery
- X-rays: revealed bilateral OA of the knees
- Patient received a right continuous femoral nerve block
- Post-surgical impairments: decreased right lower extremity strength, range of motion, and sensation, and increased pain

Plan of Care
- Physician orders: full weight bearing right lower extremity, right knee immobilizer for out of bed mobility, continuous passive motion machine twice a day for two hours each.
- Patient was seen two times a day for the length of his acute care stay.
- Patient was only seen once on post-operative day two.
- Patient was discharged on the morning of post-operative day two.

Interventions
- Physician orders: full weight bearing right lower extremity, right knee immobilizer for out of bed mobility, continuous passive motion machine twice a day for two hours each.
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Outcomes

<table>
<thead>
<tr>
<th>Right Lower Extremity</th>
<th>Knee Range of Motion</th>
<th>Knee Strength</th>
<th>Pain Levels</th>
<th>Sensation</th>
<th>Straight Leg Raise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Examination</td>
<td>4/71 degrees</td>
<td>1/5 flexion</td>
<td>4/5</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>Discharge</td>
<td>2/71 degrees</td>
<td>2+/-5 flexion</td>
<td>3/5</td>
<td>Positive</td>
<td>Negative</td>
</tr>
</tbody>
</table>

Discussion
- Literature is limited regarding the ideal staging period between bilateral TKA and beneficial post-operative exercise protocols.
- Many studies have shown that earlier mobilization and an intense rehabilitation program greatly improves patient outcomes.4
- Early rehabilitation has been found to reduce pain and improve knee ROM and lower extremity muscle strength.4
- Interventions that focus on functional activities are more beneficial than exercises that focus on isometric contractions and increasing ROM after a TKA.3
- Further research is needed to determine the most appropriate therapeutic exercises and functional mobility training.
- Specifics regarding frequency, intensity and duration need to be tested and evaluated in order to develop the most beneficial rehabilitation program.

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References