Early Utilization of the 6-Minute Walk Test (6MWT) in an Active Patient after Cardiac Surgery - A Case Report

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Unique
- The 6-Minute Walk Test (6MWT) is a functional outcome measure that is easy to implement and has been used across multiple populations.
- There is limited literature that has investigated the use of the 6MWT on post-operative day one (POD1) after cardiac surgery.

Purpose
- To investigate the use of the 6MWT as an outcome measure POD1 in a patient after cardiac surgery who participated in a self-exercise pre-op program.

Foundation
- Coronary artery disease affects more than 13 million Americans.1
- Sub-population of these patients, despite exercising regularly, can develop cardiac disease.
- Patients participating in self motivated exercise programs prior to surgery are found to excel with early utilization of the 6MWT.2
- For this active sub-population the 6MWT on POD1 may be a more specific and sensitive outcome measure.

Description
- A 68-year-old male underwent an uneventful three vessel coronary artery bypass surgery.
- He participated in a walking program for a year; two months prior to surgery his walking became limited to 20-minutes a day due to angina.
- After cardiac surgery, the patient was seen 2x/day for 3 days with discharge on the morning of POD4.
- 6MWT, RPE Scale, and FIM scores were administered in the SICU on POD1 and POD3.
- Cardiac rehabilitation focused on progressive and intensive therapeutic exercises and functional mobility training.

Interventions
- POD1: Shoulder shrugs, Shoulder flexion to level of heart, Elbow flexion/extension, Straight leg raise, Heel slides, Seated LAQ, Ankle pumps, Marching, Incentive Spirometer
  - x10 reps • Supine (am), Sit (pm)
- POD2: Shoulder shrugs, Shoulder flexion to level of heart, Elbow flexion/extension, Straight leg raise, Heel slides, Seated LAQ, Ankle pumps, Marching, Incentive Spirometer
  - x10-15 reps • Sitting
- POD3: Shoulders shrugs, Shoulder flexion to level of heart, Elbow flexion/extension, Marching, Incentive Spirometer
  - x15-20 reps • Standing

Observations
- Functional Mobility Progression
- POD1:
  - Supine to Sit: 2
  - Sit to Supine: 3
  - Sit to Stand: 6
  - Stand to Sit: 6
  - Static Sitting (EOB): 5
  - Static Standing: 6
  - Ambulation: 5
- POD3:
  - Supine to Sit: 4
  - Sit to Supine: 6
  - Sit to Stand: 6
  - Stand to Sit: 6
  - Static Sitting (EOB): 6
  - Static Standing: 6
  - Ambulation: 6

Conclusion
- The use of the 6MWT was found to be an excellent indicator of exercise capacity and readiness for discharge.
- The pre-op exercise program was believed to have been a major factor in the patient’s uneventful and fast recovery.
- Future studies should assess the use of the 6MWT within a day of extubation in a larger population of patients who are more active prior to surgery in order to be more specific with rehab direction & allocation of resources.

Acknowledgements
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References
2. Source: "Sub-population of these patients, despite exercising regularly, can develop cardiac disease." [Accessed December 20, 2016].

Outcome Measures
<table>
<thead>
<tr>
<th>Admission</th>
<th>Discharge</th>
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<tbody>
<tr>
<td>6MWT (meters)</td>
<td>165.20m</td>
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<tr>
<td>RPE (Borg Scale 6-20)</td>
<td>12</td>
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<tr>
<td>HR during 6MWT</td>
<td>80-90bpm</td>
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