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Occupational Therapy in the Intensive Care Unit

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Introduction

Hospitals in America are seeing a rise in the number of inpatient cardiac surgeries, increasing from 5,939,000 in 2000 to 7,588,000 in 2010 (Mozaffarian et al., 2015). As more patients require cardiac surgery, occupational therapy services are needed in the intensive care unit (ICU) to facilitate patients' return to their daily lives. Due to the nature of cardiac surgery, patients' physical, cognitive, and psychosocial well-being may be affected. Occupational therapists use a holistic approach to healthcare by addressing the entire person. This supports the inclusion of assessments and interventions for physical, cognitive, and psychosocial factors in the ICU during recovering. Addressing these three factors may promote overall health and well-being, as well as increase participation in meaningful occupations.

Psychosocial Factors

Patients that undergo cardiac surgery are at an increased risk for developing depression and anxiety which may have long lasting symptoms that may negatively impact their quality of life (Paparrigopoulos et al., 2013). Literature has shown the prevalence of depression to be 23% and anxiety to be 45.5% post cardiac surgery (Pirraglia et al., 1999; Tully, Baker, Turnbull, & Winefield, 2008).

Evidence shows partners of patients undergoing cardiac surgery have 23% more symptoms of depression and anxiety than the patient themselves (Bunzel et al. 2007).

To identify impairments in psychosocial functioning, the Hospital Anxiety and Depression Scale (HADS) may be administered to patients. The HADS demonstrates high validity, specificity, and sensitivity to both anxiety and depressive symptoms (Bjelland, Dahl, Haug, & Neckelmann, 2001).

To address anxiety and depression in patients that undergo cardiac surgery, psychosocial education and music therapy are both supported by evidence. Patients and partners who received psychosocial education had decreased anxiety and depression, as well as a significant improvement well-being (Årger, Berg, Svedjeholm, & Stromberg, 2015). Implementing music therapy post cardiac surgery significantly reduced pain and anxiety in patients undergoing cardiac surgery (Sendelback, Halm, Doran, Miller, & Gaillard, 2006).

Statement of Purpose

An evidence-based clinical pathway ensures that the most appropriate and effective guidelines, assessments, and interventions are implemented to create consistent and unbiased care, facilitate patients' return to their highest level of functioning, and improve patients' overall quality of life. Therefore, the goal of this project was to propose a clinical pathway for the occupational therapy department at Mills Peninsula Medical Center, located in Burlingame, CA. The proposed clinical pathway addresses common physical, cognitive, and psychosocial factors that may arise in patients post cardiac surgery during their stay in the ICU and step-down unit.

Clinical Pathway for Intensive Care Unit

Occupational Therapy Evidence-Based Clinical Pathway

The purpose of the proposed occupational therapy evidence based clinical pathway at Mills-Peninsula Medical Center is to provide a clinical guide for occupational therapy interventions for patients post cardiac surgery on the intensive care and step-down units. The clinical pathway addresses common physical, cognitive, and psychosocial concerns that may arise in patients post cardiac surgery and creates a standard for consistent and effective treatment.

Guidelines

- Follow established vital signs parameters per orders from Cardio-Thoracic surgeon
- Apply mobility safety screen and no therapy under these conditions:

Cardiovascular Measures:	Invasive Monitoring
• MAP goal > 60 on less than 3 vasoactive medications	• No IABP
• Resting HR < 50 or > 140 bpm	• Labs
• New arrhythmia developed	• Hgb < 7.0
• New onset angina-type chest pain	• Hct < 25%
Pulmonary Measures:	• BS > 300mg/dl
• SpO2 < 88%	• K+ < 3.2 mEq/L, > 5.5mEq/L
• Respiratory Rate > 35	• Platelets < 20,000
Mental Status	• INR > 5
• RASS > -3	

Day 1	Day 2	Day 3: Transfer to Step-Down Unit	Day 4 to Discharge
<p>Educate:</p> <ul style="list-style-type: none"> - Sternal Precautions; refer to "Sternal Precautions" handout <i>- Cahalin et al., 2011 [V]</i> - Heart Hugger/Sternal support bra (don/doff) - Incentive Spirometer (10 reps/hr) <i>- Joo et al., 2004 [III] ; Karabulut, 2015, [IV]</i> <p>Early Mobilization:</p> <ul style="list-style-type: none"> - Modified log roll with HOB<20° - EOB exercises while contracting abdominal muscles <ul style="list-style-type: none"> - Marching in place - Ankle pump - Knee extension <i>- El-Ansary et al., 2007, [I] ; Sturgess, 2014, [I]</i> - Level 4 Mobility-in room and hallway <ul style="list-style-type: none"> - Standing and balance exercises at bedside - 5 walks/day - Hygiene and grooming activities <i>- Ku et al., 2002, [I] ; Wahab et al., 2015, [II] ; Waugaman et al., 2015, [III] ; Savage, 2007, [IV] ; Ainsworth et al. 2011, [V] ; Jetté, 1990, [V]</i> <p>Caregiver(s) Education:</p> <ul style="list-style-type: none"> - Education primarily directed towards caregiver(s) <i>- Cheraghi, 2015, [I] ; Bunzel, 2007, [II] ; Young, 2005, [II]</i> <p><small>*Caregiver(s) should be educated throughout the recovery process</small></p>	<p>Educate:</p> <ul style="list-style-type: none"> - Sternal precautions - Determine adherence to precautions - Modified ADL techniques <p>Early Mobilization:</p> <ul style="list-style-type: none"> - Modified log roll or regular log roll with HOB <20° - Contracting abdominal muscles while completing ADL - Level 4 Mobility-in room and hallway <ul style="list-style-type: none"> - 5 Walks/day - Sinksides hygiene and grooming - UB dressing with modified technique - Toilet transfer and simulated toilet hygiene <i>- Savage, 2007, [IV] ; Ainsworth et al., 2011, [V] ; Jetté, 1990, [V]</i> <p>Caregiver(s) Education:</p> <ul style="list-style-type: none"> - Caregiver(s) receives the same education as the patient 	<p>Early Mobilization:</p> <ul style="list-style-type: none"> - Log Rolling <i>- El-Ansary et al., 2007, [I] ; Sturgess, 2014, [I] ; Brocki et al., 2010, [V] ; Cahalin et al., 2011, [V]</i> - Contracting abdominal muscles while completing ADL - Do not exceed RHR+20 during activity <i>- Joo et al., 2004, [III]</i> - Level 4 Mobility-in room and hallway <ul style="list-style-type: none"> - 5 walks/day - UB/LB dressing w/ modified technique - Toilet transfer and toilet hygiene <p>Cognition:</p> <ul style="list-style-type: none"> - Refer patient to "Tips to Feel More Focused in Your Daily Life" handout - Administer MoCA© if: <ul style="list-style-type: none"> - No reliable caregiver(s) - Clinical observation warrants assessment <i>- Ball et al., 2013, [I] ; Aykut et al., 2013, [II] ; Cameron et al., 2011, [III] ; Newman et al., 2001, [III]</i> - MoCA© score below 18: May indicate Moderate Cognitive Impairment <ul style="list-style-type: none"> - All education and instructions should be directed to reliable caregiver(s) - Consider referral for additional services at discharge - MoCA© score below 26: May indicate Mild Cognitive Impairment <ul style="list-style-type: none"> - Educate patient and consider environmental modifications - Consider referral for additional services at discharge <p>Caregiver(s) Education:</p> <ul style="list-style-type: none"> - Refer caregiver(s) to "Tips for Caregivers" handout 	<p>Educate:</p> <ul style="list-style-type: none"> - Start with low level activities and slowly progress to higher level activities. - Refer patient to "How to Progress Back to Your Daily Routine" handout <i>- Savage, 2007, [IV] ; Ainsworth et al. 2011, [V] ; Jetté, 1990, [V]</i> - Instruct IADLs with sternal precautions. Refer patient to "Sternal Precautions" handout <i>- El-Ansary et al., 2007, [I] ; Sturgess, 2014, [I] ; Brocki et al., 2010, [V] ; Cahalin et al., 2011, [V]</i> <p>Early Mobilization:</p> <ul style="list-style-type: none"> - Log rolling - Contracting abdominal muscles while completing ADL - Level 4 Mobility-in room and hallway <ul style="list-style-type: none"> - 5 walks/day - Sinksides ADL - Simulated standing shower and shower transfer - Home management tasks - e.g. retrieving/arranging clothing from closet - Meal preparation - e.g. practice using microwave or make a sandwich <i>- Savage, 2007, [IV] ; Ainsworth et al. 2011, [V] ; Jetté, 1990, [V]</i> <p>Psychosocial Functioning:</p> <ul style="list-style-type: none"> - Administer the HADS to patient <i>- Bjelland, 2001, [I] ; Bratas, 2014, [IV]</i> - HADS score of 8 and above in either the depression and/or anxiety category: <ul style="list-style-type: none"> - Refer patient to "Tips for Coping with Feeling Down" and "Tips for Coping with Stress and Feeling Anxious" handouts - Music/quiet time for two 20-minute sessions each day <i>- Heidari, 2015, [I] ; Sendelback, 2006, [I]</i> <p>Caregiver(s) Education:</p> <ul style="list-style-type: none"> - Refer caregiver(s) to "Tips for Caregivers" handout

PROGRESSION OF REHABILITATION

DISCHARGE

Cognitive Factors

Early identification of mild cognitive impairment (MCI) in patients that undergo cardiac surgery should occur prior to discharge from acute care. In a longitudinal study that followed 261 patients post coronary artery bypass graft (CABG), the incidence of cognitive decline was 53% at discharge, 36% at six weeks after surgery, 24% at six months after surgery, and 42% at five years after surgery (Newman et al., 2001). Additionally, Ahlgren, Lundqvist, Nordlund, Aren, and Rutberg (2003) found that patients post CABG experienced impairments in attention and traffic behavior during an on-the road test. Aykut, Albayrak, Guzeloglu, Baysak, and Hazan (2013) found that patients post CABG experienced noncompliance with respiratory exercises and increased difficulty learning management of inhalers as a result of MCI. Both studies demonstrate the significant impact MCI has on safety.

Cameron, Carter, Page, Stewart, and Ski (2013) compared the Mini Mental State Exam (MMSE) and the Montreal Cognitive Assessment (MoCA©) and found that the MoCA© classified 41% of patients with heart failure as cognitively impaired that were not classified as having MCI by the MMSE.

Physical Factors

The inclusion of early mobilization in occupational therapy intervention for patients post cardiac surgery in the ICU is supported by current literature. Studies show early mobilization may reduce the effects of disuse muscle atrophy by maintaining or improving patients' functional participation, endurance, and muscle strength (Citerio et al., 2015; Fan, 2012; Nordon-Craft et al., 2012). The progression of early mobilization in the ICU may be guided by Metabolic Equivalent of Task, vital signs, and RHR + 20 (Joo et al., 2004; Preston & Flynn, 2010; Savage, Toth, & Ades, 2007).

Sternal instability may result in pain that limits patients' ability to perform daily tasks (El-Ansary, Waddington, & Adams, 2007; Kun & Xiubin, 2009; Olbrecht et al., 2006; Tuyl, Mackney, & Johnston, 2012). To address this concern, evidence supports the inclusion of thoracic exercises and precautionary sternal precautions to facilitate proper healing of the sternum and patients' return to occupational participation (Brocki, Thorup, & Andreasen, 2010; Cahalin et al., 2011; Sturgess, Denehy, Tully, and El-Ansary, 2014).

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