Early Mobilization in Cardiac Surgery Patients

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Early Mobilization in Cardiac Surgery Patients
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Coronary Artery Disease (CAD)

Introduction
Coronary artery disease (CAD) is one of the largest causes of mortality and hospitalization worldwide (Giantos et al., 2017). Every 40 seconds an American will die of a heart attack (Vincent et al., 2015). CAD is an essential topic that must be discussed by health care professionals. With the amount of hospitalizations and mortality, health care professionals must be prepared to prevent and have an understanding of CAD. Healthcare professionals taking care of these patients need to be aware of risk factors, signs and symptoms, medical management, and surgical management of this disease. This poster seeks to educate medical professionals as well as the public on the understanding of CAD and the severity of heart disease.

Underlying Pathology
Coronary artery disease (CAD) or coronary heart disease (CHD) is when the heart muscle does not receive enough oxygen and nutrients, which leads to ineffective ability to pump (McCance & Huether, 2014). CAD is a build-up of plaque in the arteriolar (of the heart, American Heart Association, 2015) which can lead to heart attacks. This build-up of things in arteries and the blood flow is limited to the heart, as a lack of blood flow can lead to heart ischemia (American Heart Association, 2015). With newer technologies, there are many treatment options both medical and surgical (such as stents, open heart surgery, anti-platelet or anti-coagulant medications; CAD causes coronary heart disease, atherosclerosis and atherothrombosis). In the United States, there are over 886,642 deaths in the United States related to underlying heart disease (2021). When experiencing signs and symptoms of a heart attack, call 911 and seek medical attention.

Coronary Artery Disease (CAD)

Significance of Pathophysiology
Due to severity of heart disease, it is important for health care providers to be able to appropriately diagnose CAD. Atherosclerosis, which was once thought of as a cellular structural disease, is now considered an inflammatory disease (Libby & Theronus, 2007). When patients go to the emergency department (ED) with chest pain (CP), it is the medical doctors (MD) duty to determine the cause behind chest pain. An electrocardiogram (EKG) should be completed as well as cardiac work-up. It is important to for health care professionals to understand the significance and high risk of mortality associated with CP and CAD. With proper diagnosis, appropriate care and interventions can be provided to the patient.

Treatment of CAD

• High LDL, cholesterol
• Low LDL, cholesterol
• High blood pressure
• Family history
• Diabetes
• Smoking
• Post-menopausal for women
• 65 years or older
• Obesity
(American Heart Association, 2015)

Risk Factors for CAD

“Cardiac surgery stand out from other forms of treatment due to the advances in technology and advancements that have resulted in safer procedures and lower mortality rates” (Giantos et al., 2017). Even with these advances, cardiac surgery is not the first treatment option. If a person comes into the ED with ST elevation (STEMI) on the EKG, the patient first goes to the catheterization lab. “Percutaneous coronary intervention (PCI) is a procedure whereby stent (narrowed) coronary vessels are dilated with a guidewire” (Libby & Theronus, 2014). With a PCI, sometimes a stent is placed in the vessel. With the utilization of PCI, it prevents further heart damage. By dilating the vessel, blood is able to flow freely through the arteries and supply oxygen and nutrients in the heart muscle.

Risk Factors for CAD (continued)

If multiple vessels are blocked and the patient is a surgical candidate, open- heart coronary artery bypass can be performed. With this surgery, the patient’s blocked vessels are then bypassed by new arteries or veins to the cardiac surgical areas onto the heart. With any surgical procedure, especially open heart surgery, complications may arise. However, with new technologies and advancements, it is becoming a safer surgery. Cardiac surgery can prolong the patient’s life and decrease the risk of heart attacks in the first couple of years. If the patient is a surgical candidate, proper nutrition, exercise, and lifestyle changes are essential for the best results.

Decrease risk of CAD

• Proper nutrition
• Weight management
• Getting plenty of physical activity
(American Heart Association, 2015)

What to expect with cardiac surgery

If surgery is not an option, the patient may spend a couple of days in the hospital.

- Surgery can take 3-6 hours
- The patient may have a breathing tube for general anesthesia, which they may or may not remember and may have a sore throat
- After surgery, the patient will have a long mesh chest incision, chest tubes, urinary catheter, and nasogastric tube
- The patient will go “in pump” meaning in coronary artery bypass where the heart is not beating (Mayo Clinic, n.d.)

Surgical Complication

With any major surgery, there is always a risk. Potential risks may exist after open heart surgery include:

- Bleeding
- An irregular heart rhythm
- Infections of the chest wound
- Memory loss or trouble thinking clearly, which often improves within one to 2 months
- Kidney problems
- Stroke

Early Mobilization After Cardiac Surgery

After open heart surgery, early mobilization is key. In order to decrease length of stay, improve physical function, and optimize the rehabilitation, early mobilization is essential (Kanejima et al., 2020). Early mobilization protocols can be implemented into the intensive care unit when postoperative open heart surgery patients are able to walk from the hospital to the ICU. It can take anywhere from 1-2 days for these patients to walk. If implemented early, some research articles define early mobilization before POD 3 or even POD 1.

Nursing Implication

• Provide education to patient and family about heart disease including: signs & symptoms, risk factors, and when to seek medical attention
• Educate patient on importance of diet and exercise for healthy lifestyle
• Educate patient on postoperative cardiac surgery instruction, early mobilization, and discharge instruction
• Help patient with fears about going home and create a plan with their care team to help with open and honest communication
• Educate patients of the importance of medication adherence
• Help patient with self-help after surgery through exercise
• Educate patients on importance of medication administration and taking the correct dosage
• Educate on importance of checking blood pressure regularly and proper technique
• Provide educational materials for more information about CAD

References
American Heart Association. (2015). Coronary artery disease (CAD) is a serious medical condition. When experiencing signs and symptoms of a heart attack, it is essential to call 911 and seek medical attention immediately. In addition, all health care professionals and emergency care providers should be educated on the severity of CAD and the importance of early diagnosis so patients can receive the best treatment possible. With the wide variety of treatment options, it is best to consult a cardiologist and sometimes cardiothoracic surgeon. With teamwork between ER doctors, intensive care doctors, cardiologists, interventional radiologists doctors, cardiothoracic surgeons, and nurses, proper care can be given to all patients experience a heart attacks or CAD. With proper education to the public and health care, the incidence of mortality will decrease. Overall, CAD is a life-threatening emergency and proper medical advice should be sought out to decrease the rate of mortality.

Additional Sources

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