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Advanced PM

Case #2

2/17/15

**Evaluation**

**Acute Myelogenous Leukemia**

Acute Myelogenous Leukemia is defined as cancer of the blood and bone marrow and it is the most common form of acute leukemia in adults (National Cancer Institute , 2014). A blood stem cell can become a myeloid or lymphoid stem cell then differentiates into red blood cells, white blood cells, or platelets. Leukemia occurs when red blood cells, white blood cells, or platelets become abnormal and these leukemia cells make less space available for the healthy cells. This form of cancer progressives rapidly especially without treatment. Symptoms of Acute Myelogenous Leukemia (AML) are fever, shortness of breath, easy bruising or bleeding, petechiae, weakness, fatigue, weight loss, and/or loss of appetite (National Cancer Institute , 2014). People with AML may have headaches, slurred speech, bone pain, joint pain, and feel dizzy or faint or confused (Americian Cancer Society , 2014). The symptoms of AML will affect the physical therapy evaluation.

The patient case describes that she reports generalized weakness and fatigue. Her fatigue may be from her diagnosis and cancer treatment. During the evaluation, I will order the components of the evaluation so that the tasks that are more energy demanding is performed last. I do not want the patient to be fatigued before the end of the evaluation. I will check for signs of the disease and ask additional questions to determine if she is suffering from other symptoms of the disease besides fatigue and weakness. I will include outcome measures that evaluate fatigue and endurance to obtain an objective view on how her fatigue affects her daily life. I will have her complete the 2-minute walk test to measure aerobic capacity. In addition to that, the Fatigue Severity Scale will specifically measure how her fatigue influences her life. The Fatigue Severity Scale consists of nine questions and a higher score indicates more severity.

**Past Medical History**

The patient had a lobectomy due to asperigilloma. When *aspergillus* develops into a mass in the lung cavity it causes an asperigilloma to form. There are multiple methods of treatment; surgical removal is usually the only choice for treatment if life-threatening bleeding is present. There is a high risk of complications from surgery including difficulty breathing, excessive bleeding from the lung, and the spread of infection. The prognosis for asperigilloma depends on the general health of the individual and the severity of the condition (Dugdale, Vyas, & Zieve, 2012). The patient had the lobectomy in 2006 which was almost ten years ago. I am going to assume that she did not have any complications from the surgery and there was no information in the patient case that suggests problems. Therefore, the history of the lobectomy procedure will not affect my evaluation.

The patient’s adrenal insufficiency is considered secondary adrenal insufficiency since it is medically induced. Secondary adrenal insufficiency can cause fatigue, loss of appetite, nausea, vomiting, diarrhea, muscle weakness, irritability, and depression (Dugdale, Wexler, & Zeive, 2008). Other symptoms of secondary adrenal insufficiency include muscle pain and light-headedness. Adrenal insufficiency is treated with glucocorticoids. People who are using steroids to treat this condition may have complications. They can form a dependence while on the steroids and have withdrawal effects after they stop taking steroids. Steroid use can cause diabetes, high blood pressure, and osteoporosis (Dugdale, Wexler, & Zeive, 2008). During the evaluation, I will check the patient’s blood pressure and ask screening questions to see if she has any symptoms of being pre-diabetic or diabetic. Also, I will look for signs of adrenal crisis which is more serious complication during the evaluation. Symptoms of an adrenal crisis are dizziness, nausea, vomiting, intense fatigue, and low blood pressure.

Depression and anxiety was noted in the patient’s past medical history. There are different forms of depression. For example, the symptoms of major depression severely affects all aspects of the person’s life such school, work, and home life (National Institute of Mental Health, 2015). A person with major depression can have one or more episodes of depressive symptoms over their lifetime. In contrast, the symptoms persistent depressive disorder last for at least 2 years. Anxiety is considered to a normal response to stress, but excessive anxiety is unhealthy. Anxiety and depression are common in people with cancer and people who are receiving cancer treatment.

The history of mental health issues will affect my evaluation. It is difficult to determine if signs of depression like fatigue and loss of appetite is from the cancer or cancer treatments. I will have the patient fill out outcome measures to assess anxiety and depression. The Patient Health Questionnaire-9 and General Anxiety Disorder-9 scales will be used. The PAQ-9 is a depression scale and has nine items to measure the severity of depression. The GAD-9 is an anxiety scale and has seven items to evaluate the severity of anxiety. Higher scores on both outcome measures indicate worse symptoms of depression and anxiety. Depending on the scores on the outcome measures, I will refer the patient to a psychologist or physiatrist to receive treatment for possible depression and/or anxiety. I can also refer her back to the doctor who prescribed the antidepressant.

**Medications**

The patient is currently taking the following medications: Remeron, Nexium, Zofran, Fluconazole, and steroids. I will look up the patient’s medications during the evaluation to gain more knowledge about the medications and to investigate negative drug interactions. Remeron is an antidepressant and Nexium is a proton pump inhibitor that is commonly used to treat gastroesophageal reflux (Drugs.com, 2015). The patient is taking Zofran to reduce nausea and vomiting. Fluconazole is an antifungal medication and is utilized to treat or prevent fungal infections (Drugs.com, 2015).

Additionally, by learning more information about the patient’s medications it will help me examine the common side effects from the medications that can affect physical therapy evaluation and/or treatment. There are numerous side effects from medications. Based on the information regarding side effects of her medication, common side effects that can affect physical therapy evaluation/treatment are dizziness, paresthesia in the extremities or body, and shortness of breath. These are common side effects of Remeron and Zofran.

**Cancer Treatments**

 In general, chemotherapy can have devastating effects on the body. The patient received the following chemotherapy drugs intrathecal cytarabine, intravenous idarubicin, bortezomib, and cytarabine. The chemotherapy drugs caused the patient to have several platelet and RBC transfusions, nausea, vomiting, and mucositis. Transfusions are given patients to temporarily increase the number of blood cells. Complications from transfusions may acute or delayed. Some of those complications are fever, allergic reactions, chills, nausea, back pain, shortness of breath, drop in blood pressure, and changes in urine (Leukemia and Lymphoma Society, 2015). Since the patient has had multiple blood transfusions, it is important that I look for signs of anemia during the evaluation as well as complications from the transfusions. Fatigue and weakness are symptoms of anemia. Overall, the patient’s diagnosis, past medical history, and effects from cancer treatments will warrant a more in depth evaluation and systems review.

**Exercise Prescription**

The patient has Acute Myelogenous Leukemia and this condition alone poses numerous negative effects on her body. Then the effects from medications and/or chemotherapy intensify the patient’s symptoms. All of the factors discussed above must be taken into consideration when prescribing an exercise program for her. It is going to be important to watch the patient’s vital signs such blood pressure and pulse oximetry before, during, and after exercise. Furthermore, I will monitor how the patient “feels” during exercise. For example, I will ask the patient do she feel light-headed, faint, or dizzy. It is expected that the patient will fatigue very quickly at the beginning of treatment and appropriate rest breaks must be incorporated into the exercise program.

**Exercise Interventions**

 Exercise training in leukemia patients has been investigated. Aerobic and strength training can significantly improve cardiorespiratory endurance, fatigue, and depression in patients diagnosed with acute leukemia or who have recently relapsed (Battaglini, et al., 2009). A clinical trial was completed to investigate the safety, feasibility, and efficacy of an exercise program in patients with acute myeloid leukemia undergoing chemotherapy. Participants in the exercise program enhanced the physical fitness and quality of life after the exercise program. The exercise program consisted of aerobic, resistance, and flexibility exercises (Alibhai, et al., 2012). Individuals with lymphoma that completed a 12-week aerobic training program significantly progressed their physical functioning and self-reported outcomes improved (Courneya, et al., 2009).

 Based on the evidence, the potential exercise interventions for this patient is aerobic exercise and resistance training. I think the major barriers for this patient participating in an exercise program are the patient’s reports of fatigue/weakness and coping with stress. The patient is going to feel tired easily when she begins the exercise program and may not see the benefits of exercising when exercise is going to make her feel even more fatigued. I will encourage the patient to continue with her exercise and share the evidence of the benefits of exercising in relation to her condition. Being a parent of a young child is stressful for any adult. The patient will encounter more stress due to her fighting cancer and dealing with the side effects from chemotherapy. I will suggest that she join support groups to help her cope with fighting cancer and being a parent to a young child. Also, she can seek out additional resources in community from organizations who aim to help people with cancer.

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