THE EFFECT OF AN 8 WEEK AEROBIC Exercise PROGRAM ON FATIGUE, ENDURANCE, HEMOGLOBIN, PAIN, AND QUALITY OF LIFE IN A PATIENT WITH CANCER: A CASE STUDY

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PURPOSE:
Fatigue is a known consequence of chemotherapy and radiation treatment imposing a debilitating effect on quality of life in at least 70% of patients with cancer. A positive effect has been found with aerobic exercise in healthy subjects and in patients with cardiopulmonary diseases and other chronic conditions. Some positive effects have been documented in patients with cancer by increasing quality of life, decreasing fatigue, maintaining hemoglobin levels, and improving cardiorespiratory function. The purpose of this case study focused on the possible benefits of mild aerobic exercise on fatigue, pain, aerobic capacity, hemoglobin and the quality of life in a patient with bilateral breast cancer.

SUBJECT:
The subject in the study had to meet all inclusion criteria including:
She had to be at least 18 years of age, independent in ambulation with or without an assistive device, and able to follow instructions. The researchers received written medical clearance from the subject’s oncologist to participate. She had baseline Hemoglobin levels above 8 g/dL (THE LANCET Oncology, October 2003, Vol 4, p. 622). Hemoglobin levels were obtained from the physician of record and recorded on the medical release form. In addition, she needed to have Blood Pressure readings within the safe limits established by the American College of Sports Medicine.

The subject of this study was a 58 year-old female with bilateral breast cancer diagnosed within the past year. She had undergone bilateral mastectomies with right sentinel node and left axillary lymph node dissections. The subject also reported a history of Sjogren’s syndrome, Hypothyroidism and Osteopenia.

METHODS AND MATERIALS:
The subject completed the Brief Fatigue Inventory and Brief Pain Inventory from the M. D. Anderson Cancer Center, the Functional Assessment of Cancer Therapy-General (FACT-G) version 4 from the Functional Assessment of Chronic Illness Test Organization (www.facit.org) developed and validated in 1993, and the 6-Minute Walk Test. In addition, the subject underwent a functional mobility screen that included gross strength, ROM, sensation, and gait analysis by the researchers. The subject’s heart rate (HR) target exercise training zone was calculated using the following formula: Low end = .5[(220-age) – HR rest] + HR rest; High end = .65[(220-age) – HR rest] + HR rest. These are the suggested training parameters from the July, 2006 Oncolink, an online cancer resource from the University of Pennsylvania.

EXERCISE PROTOCOL:
30 minutes of mild aerobic exercise (5 minutes of warm-up, 20 minutes exercise, and 5 minutes of cool-down) once per week with researchers consisting of low-impact, rhythmic aerobic exercise followed by a home exercise program of a minimum of twice a week 30 minutes of walking (maintaining target heart rate).

ANALYSIS:
Pre and post test comparisons on all inventories and 6-Minute Walk Test were completed and analyzed. Pre and post hemoglobin levels were compared also.

BRIEF PAIN
PRE 0 POST 0.86
BRIEF FATIGUE
PRE 2 POST 4
FACT-G(12=MCID)
PRE 98/108 POST 93/108
6-MIN WALK
PRE 618 POST 607
(54=MCID)

MD reported that the subject maintained her baseline hemoglobin levels throughout the study.

CONCLUSIONS:
Aerobic exercise appeared to maintain baseline levels of aerobic capacity, quality of life and hemoglobin levels in this subject. Trends for improvements also were noted in the subject’s resting heart rate, exercise recovery heart rate, systolic and diastolic blood pressure. The subject had increased pain related to development of lymphedema in her left upper extremity that interfered with her sleep resulting in increased fatigue. She reported no loss of function. She was referred back to her oncologist and to a lymphedema specialist for follow-up.