C6.1: Exercise Training in Heart Failure Using Innovative Application of Single Subject Methodology

Author List:
Presenting Author: Andrea M. Boyd
Additional Author: Andrea M Boyd

Address: Medical College of Georgia, School of Nursing
Augusta, Georgia 30912
United States
Ph: 706-721-4602
Fax: ANBOYD@mail.mcg.edu
Institution: Medical College of Georgia

Presentation Preference: Session Presentation

Abstract Categories:
Thematic Areas: Chronic illness
Thematic Areas: Methods

Abstract:
Introduction: PURPOSE: The purpose of this symposium presentation is to present the innovative application of employing a single subject design within an experimental arm of a between group research design in a current clinical research study. SIGNIFICANCE: Heart Failure (HF) is a significant healthcare concern in the US with a 120% rise in mortality rates over 15 years costing the country an estimated $37.2 billion in 2009. Research has established that exercise training (ET) increases aerobic capacity, peak oxygen consumption, endothelial dysfunction, quality of life, and the ability to tolerate activity within the overall HF population. Animal models have emerged beginning to explain some of the underlying mechanisms for the pathologic expression of symptoms, including fluid instability. A translational link not to been established between these animal models and the human expression of HF symptoms, ET effects, and fluid instability.

Method(s): METHODS: The central hypothesis is that a weight-bearing aerobic training ET protocol will reduce (stabilize) 24-hour weight and bioelectrical impedance patterns of variability as evaluated via mixed-effects regression modeling greater than any other form of ET protocol (resistance training and non-weight bearing aerobic training). Design- Between group design (i.e. control/experimental) with a single subject design within the experimental arm (multiple baseline). RATIONALE- The use of such technique will allow for the subjects to be their own controls while also allowing for statistical group comparisons. Subjects and Setting: 60 subjects meeting inclusion/exclusion criteria will be recruited/enrolled from the MCG and VA HF Clinics and outpatient cardiology clinics within 50 miles of Augusta. Subjects will then be randomized to the exercise or usual care groups. Interventions and Procedures: The exercise
protocol will last 12 weeks. Subjects will be randomized to order of ET. Weight-bearing aerobic ET will be walking on a treadmill, non-weight-bearing aerobic ET will be stationary bicycling, and resistance ET will be lower body isolation ET.

**Results:** Fluid stability is the concept of day to day variability of movement of intra-cellular fluid to extra-cellular fluid. Fluid stability will be assessed using 24-hour weight and bioelectrical impedance.

**Discussion & Conclusions:** DATA ANALYSIS: Statistical analysis will utilize a longitudinal mixed-effects regression model, modeling variability over time for the subjects individually, as well as, within groups.

**Abstract History:**
This abstract has not been presented or accepted for presentation in whole or in part at the SNRS or other scientific meeting.

**Financial Disclosure:**
No, I (or a member of my immediate family) have not received something of value* from or own stock (or stock options) in a commercial company or institution related directly or indirectly to the subject of my presentation.

**FDA Disclosure:**
I will not be describing any pharmaceutical and/or medical device.

**Non-Exclusive License:**

Submitted by: