Nutritional needs and weight management after SCI: A telehealth approach

B Jenny Kiratli, PhD

VA Rehabilitation Research and Development – Merit Review
Oct 1, 2008 – Sep 30, 2012

Project Summary/Abstract

Submitted in response to Solicitation for Research for Advancement in Technology for the Treatment of Obesity

This proposal represents a collaborative effort between the Palo Alto, Bronx, and Hines VA SCI Centers.

Principal Objectives: The primary purpose of this proposal is to reduce or prevent obesity and reverse or prevent obesity-related serious health complications by gaining a better understanding of the nutritional needs of persons with SCI and the multiple physical, metabolic, medical, and behavioral factors that influence weight gain in this population. The application of the work proposed here will be definition of population-specific nutritional standards and dietary recommendations for optimal weight management after SCI. Based on nutritional information and associated findings, we will design and pilot test an innovative telehealth program ("Tele-Nutrition") for in-home monitoring toward enhancing compliance with dietary recommendations. All participants will be veterans with SCI.

Secondary Objectives: Our secondary objective is to evaluate the appropriateness of various measures of adiposity for characterizing individuals as obese or overweight as well as their association with secondary complications related to overweight and obesity.

Key Questions:
Q1 How are nutrient and food patterns associated with BMI and body fat percent in veterans with SCI?
Q2: Are the nutrient intakes of veterans with SCI significantly different from current dietary recommendations for able-bodied individuals?
Q3: Do the nutrient intakes vary by lesion level, age, ethnicity, socioeconomic status, activity status and family environment?
Q4: What are the prevalences of overweight and obesity among veterans with SCI based on available BMI standards (ambulatory population reference)?
Q5: Can telehealth technology be used to improve adherence to dietary recommendations?

We propose three main components: (i) examination of dietary habits in the SCI population and associated trends, (ii) determination of nutritional intakes relative to metabolic function, and (iii) development of a telehealth program to increase compliance with nutritional standards via a weight management regimen.

Dietary habits. An internet-based program will be implemented, based on existing nutrition survey(s), and administered through the collaborating VA SCI Centers to collect information on the dietary habits of veterans with SCI along with relevant health and activity factors. These data will then be used to identify current patterns of in nutrition of these veterans and allow calculation of algorithms for optimal nutrient intakes. Data will be analyzed for associations and co-variance among parameters.

Physical and metabolic factors associated with weight. In a subsample of veterans with SCI, we will evaluate more closely the association between nutrition and activity status and body habitus and/or metabolic rate. Participants will be enrolled who are both over- and normal weight with both tetraplegia and paraplegia. Data collection will include detailed dietary evaluation, a SCI-specific physical activity questionnaire, body composition by DXA, and resting basal metabolic rate. Blood samples will also be collected and analyzed for various nutrient levels, lipid profiles, and health status. Multiple regression will be used to examine relationships between variables and comparisons will be made with RDA reference standards for the able-bodied population.

Weight management telehealth program. An in-home messaging system, Health Buddy, will be used to deliver a weight management program designed for veterans with SCI. Health Buddy (Health Hero Corp., Mountain View, CA) is a telehealth technology currently available throughout the VA Healthcare System. We will incorporate findings from the components described above toward design of a weight management program to address the unique needs of the SCI population. We will then pilot test our SCI-specific telehealth content for comprehension and effective information transfer, however evaluation of this approach in a clinical trial will be done in the future.