Improving Clinical Outcome in the Nutritional Management of Sarcopenia at the National Center for Geriatric Health and Research Institute (NCGH-RI), Philippines

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Summary  Background: One of the National Center for Geriatric Health-Research Institute (NCGH-RI) mission is to be the leader in innovative health care approaches to improve the quality of life of the Senior Citizens in the country, and one of its strategies to attain its mission is to look into at how it can promote clinical outcomes in conditions that are prevalent in this population. One such condition that has been identified is “Sarcopenia” which up to this point has been the subject of intensive research both in basic and clinical levels. However, it is still not part of the daily routine clinical experience of medical providers both in the ambulatory or out-patient and acute or in-patient encounter. To achieve this, the NCGH-RI has included it in the screening for geriatric syndromes using the Comprehensive Geriatric Assessment (CGA).

Key Words  sarcopenia, nutrition, resistance training

The age-related gradual loss of muscle mass and strength, or sarcopenia, represents a major factor determining the decline in functional capacity, mobility and general health in the elderly (1). Prevalence of sarcopenia in 60- to 70-y-olds is in the range of 5–13% and is estimated to increase to 11–50% for those aged 80 y or older. WHO suggest that there will be 1.2 billion people more than 60 y old in 2025 (2). Thus its impact will be felt individually and nationally in less than 15 y even in a relatively younger population like that of the Philippines.

The closest we have to a burden of disease study of sarcopenia in the Philippines is the Active Life Expectancy (ALE) study done by Prof G. Cruz, which showed that older Filipinos (more in females) are expected to live longer, but spend more years and a greater proportion of their remaining life in an inactive state due to some disability (3). Hence, it is the objective of this study to include this oftentimes overlooked condition in the day-to-day experience of the clinician by including it in the screening process of the Comprehensive Geriatric Assessment.

Intervention Program: Resistance Training RT and Oral Nutrition Supplement:
Resistance Training (RT) in Sarcopenia:

RT is generally accepted as a powerful tool in the intervention and prevention of sarcopenia. The American College of Sports Medicine issued general guidelines on RT (4) that we intend to follow. RT prescription should be individualized based on the health status of the patient. RT can be progressively introduced to individuals with cardiovascular disease, diabetes, dementia, pulmonary disease, chronic renal failure, peripheral vascular disease and arthritis. However, the exercise contraindications for older and frail individuals are similar to those for younger adults (5).

Oral Nutritional Supplements in Sarcopenia

Dietary proteins provide amino acids needed for the synthesis of muscle protein, and absorbed amino acids have a stimulatory effect on protein synthesis after feeding. Branched-chain amino acids, such as leucine, have been shown to boost signalling pathways that lead to increased protein translation in both humans and rodents (6). However, there is concern that these anabolic effects maybe blunted in older people (7), raising the possibility that recommendations for protein intake should be increased (8).

There is good observational data that links low protein intake to declining muscle mass (9); supplemental protein intake should therefore have the potential to slow down the development of sarcopenia. However, reviews on the results of protein supplementation trials have been inconsistent (10), especially if administered alone in malnourished older persons.

Studies on the synergistic effect of exercise and protein supplementation seem to be more consistent. The possibility of interactions between diet and exercise on muscle mass and functionality in the elderly has been studied recently (11). The leucine metabolite beta-hydroxy-beta-methylbutyrate (HMB) has been utilized in studies which included performance measures relating to dynamic (12), isometric and isokinetic strength (13), as well as functionality exercises in the elderly (14).

Vucovich et al. investigated the efficacy of 3 g of HMB supplementation daily, for 8 wk, in a group of 70-y-old individuals, exercising 2 d per week. Results indicated greater fat loss (−4.07 vs .31%) and greater strength...
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gains (17.2 vs. 8.3%) during the first 4 wk of supplementation in the HMB supplemented condition vs. a placebo (15).

Our study will involve the use of oral supplements which contain the amino acids L-arginine 7 gms, L-Glutamine 7 gms and Beta-hydroxy-Beta-Methylbutyrate (HMB), with 1.5 g to be given 2x daily throughout the study period.

Methodology
Type of study and time period and target population
This is an open label study looking at several clinical outcome measures which include strength, function, body fat analysis and its relationship to the quality of life of older persons diagnosed to have sarcopenia at the NCGH-RI. A total of 90 d is the expected duration of this study. The study commenced Jan. 15, 2015 and is expected to end in April of 2015.

REFERENCES