Patient's Engagement in the Identification of Critical Outcomes in Sarcopenia

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Research Letters

Patient's Engagement in the Identification of Critical Outcomes in Sarcopenia

The identification of relevant clinical outcomes of sarcopenia could be helpful for health professionals to improve sarcopenia management and for designing valid and useful clinical trials and outcome studies. Through observational studies, a flow of outcomes associated with sarcopenia has already been identified.^{1–4} However, to ensure that the outcomes measured reflect those that matter most to patients, incorporation of the patients' perspective in clinical research is also critical.^{5,6} Qualitative interviews with experts and patients are a wise way to generate original outcomes not usually observed in studies designed with large cohorts of patients. This study aims therefore to identify critical outcomes for sarcopenia using rigorous research methodologies and to select the 5 most important outcomes that will be used in a further discrete-choice experiment (DCE) to get further insight into patients' preferences at a large scale.

Methods

The identification and prioritization of outcomes was conducted following a 3-step procedure: (1) a literature review to generate an initial list of health outcomes of sarcopenia; (2) an expert panel consultation [a European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO) working group in sarcopenia, composed with authors of this paper] to restructure initial outcomes and validate them; and (3) 3 focus groups with sarcopenic participants (recruited in Belgium and Spain) organized to include patients' opinions on outcome identification, ensure content validity of the list of outcomes, and prioritize the outcomes (from the most to the least important ones). The final selection of the 5 most important outcomes was made by our expert panel based on focus group results and expert's knowledges. Approval for this study was obtained from the Medical Ethics Committee of the University of Liège that coordinated the project and by the Ethics Committee of the Hospital Universitario Ramón y Cajal, where one of the focus groups was conducted.

Results

In the first step, the initial list comprised 6 different outcomes: mortality, functional decline, hospitalization, falls, fractures, and

length of hospitalization. With the second step, the list was extended to 9 outcomes including mortality, hospitalization, falls, fractures, institutionalization, quality of life, difficulties in self-care, difficulties in moving, and difficulties in domestic duties. In the third step, thanks to the dynamic aspect of the 3 focus groups organized with sarcopenic volunteers ($n = 19$, 6 men and 13 women, mean age 78 years), 20 additional outcomes were added to the list. A ranking of the most important outcomes for participants was then performed (see Figure 1) and, based on those results, the expert panel agreed on the 5 most important outcomes: "quality of life," "mobility," "difficulties in domestic activities," "fatigue," and "falls."

Discussion

This study identified 5 important sarcopenia outcomes that have been used to design a DCE to further assess the preference of patients across Europe for sarcopenia outcomes, which is the next step of our work.⁷ DCEs have been increasingly used to elicit patients' preferences for health care and could be used as a survey design to identify the most important outcomes of sarcopenia from a patient's perspective.^{8–10} To generate a list of potential attributes for inclusion in DCE, it is highly recommended to broaden the data source spectrum. We consequently used 3 different sources of research: literature, experts, and sarcopenic patients. We truly believe that this rigorous, broad, and systematic methodology ensures content validity to the DCE. This is reinforced by the fact that all the 3 sources did not agree on all of the outcomes and that the final list contained outcomes identified in each source. A limitation of this study could be in regard to the focus groups. Indeed, only 3 focus groups involving 19 participants in only 2 different countries were conducted. It is therefore possible that additional focus groups could have generated other outcomes, but it is worth noting that the 3 focus groups organized already led to a saturation of data. Moreover, the final ranking is not exclusively based on the results of the focus groups but also on knowledge of the experts involved in our study and their clinical experience. All the experts have demonstrated high expertise in the field of sarcopenia and are considered reliable sources for outcomes generation.

Conclusions and Implications

Using patients' input, this study identified and prioritized relevant outcomes for sarcopenia. The 5 important outcomes, namely difficulties in moving, lower quality of life, falls, difficulties in domestic activities, and fatigue, were incorporated in a European DCE survey to further assess patients' preferences for sarcopenia outcomes in a larger group and investigate patient trade-offs between them.

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Fig. 1. Number of times an outcome was ranked in the top 5 of the most important outcomes during focus groups (maximum number = 19).

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Charlotte Beaudart, PhD
Olivier Bruyère, PhD
Department of Public Health
Epidemiology and Health Economics

University of Liège
Liège, Belgium

WHO Collaborating Centre for Public Health Aspects of
Musculo-Skeletal Health and Aging

Alfonso J. Cruz-Jentoft, MD, PhD
María Nieves Vaquero-Pinto, RN, PT
Servicio de Geriátria
Hospital Universitario Ramón y Cajal (IRYCIS)
Madrid, Spain

Médée Locquet, MSc
Department of Public Health
Epidemiology and Health Economics
University of Liège
Liège, Belgium

WHO Collaborating Centre for Public Health Aspects of
Musculo-Skeletal Health and Aging

Jürgen Bauer, MD
Center for Geriatric Medicine
University of Heidelberg
Heidelberg, Germany

Cyrus Cooper, MD
MRC Lifecourse Epidemiology Unit
University of Southampton
Southampton, England, United Kingdom

NIHR Musculoskeletal Biomedical Research Unit
University of Oxford
Oxford, United Kingdom

Yves Rolland, MD, PhD
Charlotte Dupuy, MD, PhD
Gérontopôle of Toulouse III
INSERM 1027

CHU Purpan
Toulouse, France

Francesco Landi, MD
Department of Geriatrics
Neurosciences and Orthopedics
Catholic University of the Sacred Heart Rome
Milano, Italy

Jean-Yves Reginster, MD, PhD
Department of Public Health
Epidemiology and Health Economics
University of Liège
Liège, Belgium

WHO Collaborating Centre for Public Health Aspects of
Musculo-Skeletal Health and Aging

Chair for Biomarkers of Chronic Diseases
Biochemistry Department
College of Science
King Saud University
Riyadh, Kingdom of Saudi Arabia

Stefania Maggi, MD
National Research Council
Neuroscience Institute
Aging Branch
Padua, Italy

René Rizzoli, MD
Service of Bone Diseases
Geneva University Hospitals and Faculty of Medicine
Geneva, Switzerland

Mickaël Hiligsmann, PhD on behalf of the
European Society for Clinical and Economic Aspect of Osteoporosis,
Osteoarthritis and Musculoskeletal Diseases (ESCEO)
Department of Health Services Research
CAPHRI Care and Public Health Research Institute
Maastricht University
the Netherlands

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Handgrip Strength References for Middle-Age and Older Chinese Individuals

To the Editor:

Handgrip strength (HGS) is an important indicator of cardiovascular disease (CVD) and all-cause mortality, and it is a simple, inexpensive method for assessing the risk of death in a number of countries and populations, particularly among older people who develop major illnesses.¹ Height is a reflection of the bone structure, and bone mass also has demonstrated implications for muscular and strength performance.² The handgrip strength index (HGSi) is an effective and convenient parameter for

predicting the functional nutritional status and muscular health of patients with Crohn disease, and it could be a potential marker of malnutrition.³ HGS differs greatly among geographic regions and ethnic groups; therefore, individual HGS measurements should be interpreted using region- and ethnic-specific references.⁴ Grip strength norms are stratified by age and sex⁵; height may also be taken into account to provide more refined norms.⁶ To date, there is no reference for HGS in middle-age or older people in China. Therefore, we aimed to establish reference values for HGS after age- and sex-stratification for Chinese persons 45 years of age and older by applying large-scale, nationally representative, population-based data.

Methods

Study Population

The data were from the China Health and Retirement Longitudinal Study (CHARLS 2015), which is based on a longitudinal survey for Chinese individuals aged 45 years or older and their spouses. The methodology of CHARLS has been described previously.⁷ A total of 14,852 individuals with complete information on age, handgrip strength, and height were from 12,400 households in 450 village-level units and 150 county-level units. Of these, 387 individuals were excluded due to implausible values for height and HGS (HGS ≥ 3 standard deviations), and 223 individuals were excluded because of arthritis, rheumatism, fracture, and pain in the wrists or fingers.

Data Collection

HGS was measured with a hydraulic dynamometer (Yuejian WL-1000, Nantong Yuejian Physical Measurement Instrument Co, Ltd, Nantong, China) in kilograms (kg). The participant performed the handgrip test in the standing position, unless there was a physical limitation, with the elbow at 90° flexion, and the forearm and wrist in a neutral posture. Two measurements were taken from each hand, and a 30-second rest was required in each measurement. The mean score of 2 measurements from each hand was used in the analysis. The HGSi was calculated as follows:

$$\text{HGSi} = \text{handgrip strength} / \text{height}^2 \left(\text{kg} / \text{m}^2 \right)$$

Statistical analysis

Smoothed percentile curves for handgrip strength were constructed for men and women separately using the lambda-mu-sigma (LMS) method (LMS Chartmaker Pro v 2.54; Medical Research Council, Cambridge, UK), which converted skewed distributions to normal distributions using the maximum likelihood method, adjusted the curves for the median (M), the coefficient of variation (S), and the Box-Cox power (L) and smoothed the percentile curves for handgrip strength with cubic smoothing spline functions.⁸

Results

A total of 14,242 middle-age and older people were included in this study, and their basic characteristics are presented in Table 1. Men had greater HGSs than women in the same age group for both hands, whereas the HGSs of the right hand were greater than those of the left hand. The left handgrip strength in men decreased from 39.5 kg to 19.0 kg (ie, by 48.1%, in the age ranges from 45–50 years

The authors declare no conflicts of interest.

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