

mgr Agnieszka Skubiszewska

Ocena stanu funkcjonalnego osób długowiecznych

Evaluation of Functional Status of Long-Lived Poles

Rozprawa doktorska na stopień doktora
w dziedzinie nauk medycznych i nauk o zdrowiu
w dyscyplinie nauki o zdrowiu
przedkładana Radzie Dyscypliny Nauk o Zdrowiu
Warszawskiego Uniwersytetu Medycznego



Promotor: dr hab. n. o zdr. Gabriela Olędzka

Promotor pomocniczy: dr n. med. Katarzyna Broczek

Warszawa, 2024 rok

Abstract

Aging is a universal and highly heterogeneous process. Age-associated changes in physical and cognitive performance as well as functional status follow different trajectories dependent on numerous intrinsic, environmental, and epigenetic factors. Long-lived people are the most functionally heterogeneous group, and maintaining functional independence appears to be a key element of successful aging. The strong increase in the global number of long-lived older people around the world requires ensuring equitable health care planning. A high risk of chronic diseases and so-called huge geriatric syndromes observed in older adults lead to many negative health consequences. Proper care planning for older adults needs comprehensive geriatric assessment. Frailty syndrome is strongly correlated with age, but not all older individuals are affected, and, if diagnosed early, frailty might be reversible or attenuated by exercise, protein-calorie, and vitamin D supplementation or reduction of polypharmacy.

Aim

The main aim of the study was to evaluate the functional status of long-lived older adults using elements of the Comprehensive Geriatric Assessment.

Material and methods

The study sample was recruited within the frame of the “Polish referential genome for genome-based diagnostics and personalized medicine” PIGen project. The expected sample size was 300 individuals aged 90 years or older, living in Warsaw and its suburbs. Invitations to participate in the study were sent by mail, and addresses were identified in the Polish General Electronic System of Population Register (PESEL). Letters were sent successively, starting with the oldest people. Additionally, an attempt was made to contact all centenarians personally or by phone. Face-to-face personal interviews were carried out between May 2013 and February 2015 by a single trained nurse. Baseline data were collected from 87 centenarians (67 women and 20 men, F:M ratio 3.4:1) and 202 individuals aged 94–99 years (158 women and 44 men, F:M ratio 3.6:1). The study used a 5-COOP consortium questionnaire in the Polish language version. The examination contained sociodemographic characteristics, elements of the CGA (functional, physical and cognitive scale), medical and pharmacy survey, questions about the quality of life, social situation and care and nursing services. Anthropometric, vital signs measurements and physical fitness tests were also performed. The survey ended with an assessment of

the interview conducted by the interviewer. The participant or his/her representative gave written consent to be interviewed.

Results

Males were better educated and presented significantly better physical and mental performance than women. Among 80 women and 40 men independent in basic activities of daily living (ADL), only 5% of women and 15% of men and were simultaneously independent in instrumental activities of daily living (IADL). Every second nonagenarian and every fifth centenarian had no dementia according to the MMSE score. Mild dementia presented in half of the centenarians, and severe dementia in more than twenty percent. One hundred and seventy-two study participants (59.5%) were classified as frail, one-third as prefrail, and less than one in ten as robust. Among nonagenarians, frailty was diagnosed in 63% of women and 30% of men, and prefrailty in 32% and 48%, respectively. In the whole group, frailty criteria were fulfilled by 59,5% of respondents (66,3 % of women vs 35,9% of men), and prefrailty criteria by 33,2% of individuals (29,3% of women vs 46,9 % of men) respectively. Robust were only 7,3 % respondents (4,4% women vs 17,2% men). Men reported symptoms of frailty less frequently than women, including a low level of physical activity (43,8% vs 76,4%, $p < 0,001$), weakness (67,2 % vs 90,6%, $p < 0.001$), and fatigue (9,4% vs 27,6% $p < 0.01$). During the 5-year observation period, 196 women (87.1%) and 49 men (76.6%) have died, including 92.6% of frail women and all the frail men as well as 78.8% of prefrail women and 66.7% of prefrail men. Among robust participants, death was registered in 60% of women and 54.5% of men. In the univariate regression models, the probability of survival was higher for younger individuals, men, and robust as compared to frail subjects as well as participants who were not able to perform the HGS measurement. Multivariate Cox proportional backward models incorporated variables that showed a significant correlation with survival in the univariate analysis.

Conclusions

The functional status of long-lived older adults were very diverse. Differences in functional performance are observed between centenarians and nonagenarians, which indicates that with each passing year, the line between the natural consequences of aging and reversible disability becomes unclear. After 100 birthdays the number of older adults who maintain functional performance decreases. Frailty phenotype negatively correlated

with functional and cognitive performance and was a strong risk factor for mortality. Prefrality screening connected with hand grip strength measurement for older adults might help to plan holistic medical care to prevent disability.