

ASSOCIATION BETWEEN PHYSICAL PERFORMANCE WITH HYPERTENSION AND FRAILITY IN OLDER ADULTS

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INTRODUCTION

Frailty is a geriatric syndrome and one of the increasing age-related health problems worldwide, which can lead to such adverse health outcomes as falls, increased hospitalisation and death^{1,2}. Hypertension is also a very prevalent disease in older adults. Therefore it is important to know if physical performance has an impact on these two conditions.

OBJECTIVE

The aim of this study was to investigate relationships between physical performance in older people who had hypertension and frailty and without these two conditions.

MATERIALS AND METHODS

The study included 55 community dwelling older adults: 12 (21.42%) men and 43 (78.58%) women. An inclusion criteria to this cross-sectional study were: age 65 or more years, unrestricted mobility, Mini mental state examination (MMSE) score ≥ 21 . Physical performance was evaluated by short physical performance battery (SPPB) composed of three tests: balance, 4-metre gait speed and chair stand. A total of 12 points can be earned. A score of 8 or less points was evaluated as having poor physical performance. Diagnosis of hypertension was retrieved from medical records. Frailty status was defined using Fried’s criteria: weakness, low walking speed, low physical activity, weight loss, exhaustion. Participants were classified as robust, prefrail and frail if they scored 0, 1–2, 3 points, respectively. Correlation between poor physical performance in older people with and without hypertension and frailty was assessed by Chi-squared test. Multinomial logistic regression was used to asses the odds of having hypertension and frailty in poor physical performance.

RESULTS

Basic descriptive characteristics of study participants are summarized in Table 1.
Table 1. Basic descriptive characteristics of study participants

Characteristic	All participants (n = 55)	Normal physical performance (n = 28)	Poor physical performance (n = 27)	p
Age, years	78.25 \pm 7.41	75.75 \pm 6.91	80.85 \pm 7.14	0.009
Number of women (%)	43 (76.8)	23 (79.3)	20 (74.1)	0.479
Height, cm	167.21 \pm 7.75	167.58 \pm 6.33	166.82 \pm 9.1	0.721
Weight, kg	74.69 \pm 12.95	74.15 \pm 11.33	75.25 \pm 14.64	0.757
BMI, kg/m ²	26.77 \pm 4.78	26.36 \pm 3.6	27.2 \pm 5.81	0.527
Number of diseases	3.42 \pm 1.97	2.43 \pm 1.55	4.44 \pm 1.86	<0.001
Number of medications	4.78 \pm 2.6	3.79 \pm 1.29	5.81 \pm 1.54	0.003
Polypharmacy (%)	34 (60.7)	14 (50)	20 (74.1)	0.068
PASE (score)	97.29 \pm 17.44	100.79 \pm 17.76	93.67 \pm 13.97	0.699
Hypertension (%)	43 (78.18)	18 (62.1)	25 (92.5)	0.003
Frailty (score)	1.77 \pm 0.56	0.82 \pm 0.22	2.7 \pm 0.46	<0.001

BMI – body mass index, PASE - Physical Activity Scale for the Elderly

Mean age of the participants was 78.25 \pm 7.41 years, ranging from 65 years to 95 years. Out of all participants 27 (48.2%) were classified as having poor physical performance, of which 7 (25.92%) were men and 20 (74.08%) were women. Out of all participants 43 (78.18%) had hypertension: 34 women (79.1%) and 9 men (20.9%). According to frailty criteria 17 (30.4%) participants were frail, of which 12 (70.58%) were women and 5 were men (29.42%). All participants with frailty also had hypertension. A statistically significant association was found between physical performance in participant with and without hypertension and frailty ($\chi^2 = 4.89$, $p = 0.027$). Logistic regression revealed that increase in SPPB by one point significantly reduces the risk of frailty and hypertension as shown in Table 2.

Table 2. Logistic regression for the association of increasing physical performance, hypertension and frailty

	Odds ratio (95% CI)	p value
Hypertension	1.01 (0.47-2.53)	0.83
Frailty	0.58 (0.35 – 0.97)	0.04
Hypertension and frailty	0.55 (0.32-0.94)	0.01

Adjusted for age, sex, number of diseases and medications; 95% CI – 95% confidence interval

CONCLUSION

Results of our study shows that there is a relationship between poor physical performance and hypertension with frailty. Also increase in SPPB score is associated with reduced risk of having hypertension and frailty.

DISCLOSURE

All authors state that they have no conflicts of interests. This project has received funding from the Research Council of Lithuania (LMTLT), agreement No S-MIP-22-36.

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