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Short Communication

Comparison of the Effects of Physical Activity in Elderly Women and Medicine Use: Short Communication

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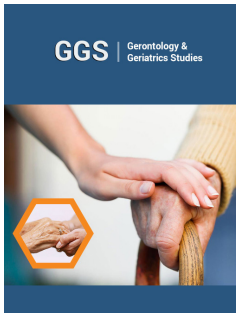

Abstract

Elderly people in general, including women, are more susceptible to some diseases such as hypertension, type 2 diabetes mellitus, dementia, etc. Aging accompanied by reduced levels of physical activity increases the chances of getting sick and needing medication. The present study aimed to compare elderly women who use more or less medication and their respective levels of physical activity. For this, interviews and a questionnaire (7-Day Physical Activity Recall – 7DPAR) were used for 73 volunteer women over 60 years old. They were divided into 2 groups (<3 drugs and ≥3 drugs). The results allow us to conclude that the most active women had lower consumption of medicines.

Keywords: 7DPAR; Physical activity; Medication; Aging; Elderly woman

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Introduction

The importance of physical activity for the elderly is abundantly described in the literature [1]. However, recent findings have shown the mechanisms associated with the practice of activities of daily living preventing the loss of muscle mass (sarcopenia) with neurogenesis and cognition [2]. Muscles are the largest endocrine organs, and currently, more than 700 factors (hormones) produced by the muscle are known (called myokines) [2]. Several of them act on neural function in physiological phenomena such as neurogenesis and dendritic density. This signaling mechanism contributes to visuospatial memory, selective attention, and inhibitory functions (attention and focus on an activity) among other functions. In addition, many of these myokines act on the immune system and homeostatic control of the body [3,4]. It is also well described in the literature that sedentary behavior tends to facilitate the installation of several diseases (e.g., type 2 diabetes mellitus, hypertension, depression, etc.), some of which will only be diagnosed during or after middle age [5]. This leads to doctors prescribing drug treatment that often must be made up of groups of drugs for multiple conditions combined [6]. Thus, the present study aims to compare the level of physical activity in the consumption of 3 or more medications and the cognitive condition of elderly women (>60 years old).

Material and Methods

Seventy-three women aged 60 years and over who attended an elderly dating center voluntarily participated in the study. All participants signed an informed consent form and the study was approved by the research ethics committee of Universidad Iguaçu, Campus V. Initially, they were interviewed about their health condition, and medications used and answered the 7-Day Physical Activity Recall (7DPAR). Blood pressure and body weight were measured. Then, they were separated into 2 groups: Group A who used less than 3 medications (n=34); Group B uses 3 or more (n=39). It was not specified which drugs were used or for what purpose, however, most were antihypertensives (several times more than one class with a predominance of ACE inhibitors), oral hypoglycemic agents, anxiolytics (several with a predominance of clonazepam), anti-inflammatory drugs. non-steroidal. After dividing the groups, the main results were: Assessment and comparison of the amount of

physical activity (7DPAR) in each group. The Shapiro-Wilk tests were used to verify the normality of the data and Levine's test to verify the homogeneity. For comparison between groups, Student's t-test was used. Cohen's d was used to evaluate the effect size. For statistical analysis, JAMOVI 1.8 was used, and the significance level adopted was $p<0.05$.

Results

The comparison between the groups did not show significant differences in terms of age, body weight, Systolic Blood Pressure (SBP), and Diastolic Blood Pressure (SBP), as can be seen in Table 1. There was a significant difference in the level of the physical activity between the groups, calculated by the 7DPAR. The group that used less medication is the one with the highest level of daily physical activity (Table 2), besides, the effect size (how much physical activity interferes with medication use) was classified as large (Cohen's d - 0.8408; Classification Large) [7].

Table 1: Characteristics of participants (mean±SD [CI95%]).

Variable	Group A (n=34)	Group B (n=39)	p-Valor
Age (Years)	66.5±5.1	68.6±7.4	0.158
	[64.8 to 68.2]	[64.8 to 70.9]	
Weight (kg)	64.7±11.2	64.4±11.1	0.902
	[60.9 to 68.5]	[60.9 to 67.9]	
PAS (mmHg)	137±21	136±21	0.749
	[130 to 144]	[129 to 142]	
PAD (mmHg)	86±13	82±13	0.093
	[82 to 91]	[77 to 85]	

Table 2: Comparison between groups in terms of physical activity level measured by the 7DPAR (mean±SD [CI95%]).

Variable	Group A (n=34)	Group B (n=39)	p-Value (Student's t-Test)	Effect Size (Cohen's d)
7DPAR (Kcal/days)	2119±447	1794±326	<0.001*	0.8408
	[1969 to 2270]	[1692 to 1897]		

Discussion

The main result of this study is that people who do more physical activities daily tend to use fewer medications. The extra energy consumption provided by physical exercises acts through the muscles, reducing the risk of the onset of diseases common to elderly people, especially those who have sedentary behavior [2,4]. It is important to note that the 7DPAR assesses physical activities such as cleaning the house, cooking, shopping, climbing stairs, etc [8]. Of course, it is not just an assessment of physical exercises such as gymnastics, dance, and weight training, among others. It is the sum of all practices that require muscle activity to be performed that influence the lower risk of diseases [6]. The IPAC is a questionnaire that is easy to apply in a very short time and can be a strong ally of the doctor in the evaluation of elderly patients (or not) [8]. What the present study showed is that some indicators (such as age, weight, and blood pressure) may not be sufficient for a more efficient assessment. Knowing if the elderly does some exercise can also be misleading, given the fact that the most important thing is to change their lifestyle habits in general [6].

Nowadays we can count on technology for a more accurate assessment of the level of physical activity. Cell phone applications can easily measure the number of steps, travelled distance, and the number of floors climbed, among other things, however, the doctor or other health professional cannot always count on this device [9]. Lower-income populations may not have higher-quality cell phones, in addition, it would be necessary for the elderly to have some type of smart clothing (still expensive) or remember to have a cell phone with them at all times, which can change the results. This study is not exempt from limitations, for example, the precise identification of which drugs were used to verify the interference of the activity performed for each drug class was not performed. The study is cross-sectional, longitudinal studies would broaden the scope of the conclusions. It is then concluded that the assessment of physical activities (and not just exercise) by instruments such as the 7DPAR can be a strong ally in the diagnosis of the risk of disease and also in a possible reduction in the use of medicines by elderly women.

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