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Dinamic balance, lifestyle and emotional states in young adults

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Abstract

A one hypothesis to explain some vestibular peripheral disorders is their association with life style. Thus, studies with young adults are relevant.

Aim: to analyze the prevalence of dynamic balance alterations in young adults and their possible association with life style variables, health and negative emotional states (since they can impact the outcome).

Materials and Methods: we carried out a non-probabilistic cross-sectional, clinical-retrospective study with young adults (18-32 years of age) from a university with 751 individuals, with a mean age of 22.45± 3.32 years. Life style, health and negative emotional states (NES) variables - depression, stress and anxiety, were collected by means of an interview. The Unterberger test was used in order to check for indications of dynamic balance alterations. Individuals with altered dynamic balance (ADB) were compared to those without these alterations (controls).

Results: From our sample, 642 (83.6%) had less than 45º of deviation, while 109 (14.2%) had greater than 45º deviation and were the considered with ADB. The ADB group had a greater prevalence of smoking, alcohol abuse/dependence, high blood pressure and NES.

Conclusion: the study highlights the occurrence of ADB which needs to be corroborated in future studies.

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INTRODUCTION

Walking is a common movement performed by human beings and it is controlled by the nervous system which regulates the temporal-space association between the position and the movement maintaining body ballance[1]. The signs and symptoms of body balance change can crop up when there is a conflict in the integration of vestibular information, appearing upon rotational dizziness (vertigo) and/or the non-rotational[2]. The physical decline associated with this movement seems to be associated with aging and to non-transmissible chronic diseases[3-5]. In this case, changes associated with aging of the psychomotor, sensorimotor and neuromuscular systems cause the appearance of postural balance problems, thus increasing the risk of falls. In Group B, the patients had sensorineural hearing loss in mild to moderate levels, unilaterally in six [6,7].

The capacity a person has to close the eyes and walk without moving, depends on a normal vestibulo-spinal and proprioceptive functions. With aging, such capacity also suffers changes such as the presence of vestibular dysfunctions as Ménière's disease, central vestibular lesions, multiple sclerosis, etc. Nonetheless, vestibular dysfunctions may also have a vascular lesion associated to the vertebrobasilar system, which is responsible for the cochleovestibular blood irrigation[8].

Recently, a hypothesis to explain peripheral vestibular disorder of vascular origin would be its correlation with morbidities associated to lifestyle and atherosclerosis. Some authors[9] consider this hypothesis in their study, using carotid ultrasonography in order to assess the diameter of the intima layer of these vessels and biochemical markers in 85 patients complaining of dizziness. Results describe that there is a positive correlation between peripheral vestibular disorders and vascular changes associated to atherosclerosis. An epidemiological study from the National Health and Nutrition Examination Survey which included 1,685 individuals with age equal to or higher than 50 years, observed a gait problem in women with low levels of HDL-cholesterol and a greater frequency of abdominal obesity[10]. Other studies also describe an association between gait disorders and abdominal obesity[11,12].

Nonetheless, epidemiological studies, especially in young adults who have still not accumulated a large number of dysfunctions and morbidities are insipient and would be relevant to analyze how much vascular change - as is the case of cardiovascular risk factors - could influence body balance.

Within the main factors associated to vascular changes which could affect the vestibular system we have: smoking, systemic hypertension, obesity - for its association with atherosclerotic, inflammatory changes and diabetes mellitus[13,14].

Given the relevance of the topic and the low quality of studies associating balance changes and (cardio) vascular risks, we led a cross-sectional populational study in young adults in whom we noticed the prevalence of individuals with dynamic balance disorders using the Unterberger test and the following risk factors: smoking, overweight/obesity, a past of hypertension and diabetes mellitus. Since there may be changes in dynamic balance associated to emotional states, we also investigated if individuals with indication of dynamic balance changes could have a greater prevalence of self-reported negative emotional states (NES) (anxiety, stress and depression).

MATERIALS AND METHODS

Outlining, population and sample

We did a cross-sectional epidemiological study in young adults who were previously selected for studies on environmental-genetic factors associated with smoking and other cardiovascular risks. Our study sample was made up of a university community. The sample selection was non-probabilistic, done from a complementary undergraduate course aimed at epidemiological investigations of aging, which included 122 undergraduate students from courses in the fields of health and biology. These students were trained as research assistants as to methodological, ethical, structured interview deployment and Unterberger balance test aspects. Each student invited, read and collected the patient's signature in the informed consent form (TCLE) and collected information from 10 volunteers (05 men and 05 women) with ages between 18 and 32 years. Once the information was collected, they were plotted by the research assistant. Afterwards, data truthfulness was checked as well as information collection quality and data typing in an Excel spreadsheet by a team of undergraduates and graduate students (masters and doctorates) who participated in the study. The calculation of sample size estimated the inclusion of a minimum number of 600 and a maximum of 1200 individuals. A total of 1,024 individuals with mean ages of 22.45± 3.32 (18 to 32 years) were included in the study. From these, we selected 751 individuals for this study for presenting similar cultural and socio-economic characteristics. The project which this study was part of was previously approved by the Ethics in Research Committee of this Institution, under process # 23081.012293/2007-03. All the volunteers signed the TCLE and the study was led within the standards of resolution 196/1996 from the National Council of Ethics in Research (CONEP).

Variables studied

The general data on socio-economic, cultural, lifestyle and health indicators were collected through a structured interview. The average time of questionnaire application was 20-25 minutes. Anthropometric data on weight (Kg) and height (m) was used to calculate the body