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ORIGINAL ARTICLE

Anthropometric evaluation in the elderly. Carlos Castellano Blanco Home for the Elderly, Pinar del Río

Evaluación antropométrica en el adulto mayor. Hogar de ancianos Carlos Castellano Blanco, Pinar del Río

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ABSTRACT

Introduction: aging with quality of life guarantees the well-being of man as a biopsychosocial being and nutrition plays an important role in this and anthropometric measurements are useful as predictors of many diseases for the evaluation of nutritional status.
Objective: to evaluate anthropometrically the growth, development and nutritional status, associated to the elderly, in the nursing home of Pinar del Río, during the period from January to December 2021.
Methods: an observational, descriptive and transversal study was carried out, where the universe under study was represented by 260 older adults, the sample was obtained intentionally, according to inclusion and exclusion criteria, it was conformed by 122. The methods of descriptive statistics, absolute frequency and relative frequency, the percentage method were used. Mean and standard deviation were calculated.
Results: there was a predominance of older adults in the range 70-74 years of age and those of male sex. In relation to the anthropometric evaluation by body mass index, there was a superiority of the normal weight, with a tricipital fold in the 50th percentile, as well as the muscular circumference of the arm.

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Conclusions: the measurement of the different anthropometric measurements in the elderly allows an integral diagnosis and stratification of risks and complications.

Keywords: Aged; Quality of Life.

RESUMEN

Introducción: el envejecimiento con calidad de vida garantiza un bienestar al hombre como ser biopsicosocial y en ello juega un papel importante la nutrición y las medidas antropométricas son útiles como predictores de muchas enfermedades para la evaluación del estado nutricional.
Objetivo: evaluar antropométricamente el crecimiento, desarrollo y estado nutricional, asociado al adulto mayor, en el hogar de ancianos de Pinar del Río, durante el período de enero a diciembre de 2021.
Métodos: se realizó un estudio observacional, descriptivo y transversal, donde el universo objeto de estudio estuvo representado por 260 adultos mayores, la muestra se obtuvo de manera intencional, según criterios de inclusión y exclusión, quedó conformada por 122. Se utilizaron los métodos de estadística descriptiva, frecuencia absoluta y frecuencia relativa, el método porcentual. Se calculó media y desviación estándar.
Resultados: existió un predominio de los adultos mayores en el rango comprendido entre 70-74 años y los del sexo masculino. Relacionado con la evaluación antropométrica por índice de masa corporal se aprecia una superioridad de los normopeso, con un pliegue tricipital en el 50 percentil, al igual que la circunferencia muscular del brazo.
Conclusiones: la medición de las diferentes medidas antropométricas en el adulto mayor, permite realizar un diagnóstico integral y estratificar riesgos y complicaciones.

Palabras clave: Adulto Mayor; Calidad de Vida.

INTRODUCTION

Good health is the best resource for personal, economic and social development, and an important dimension of quality of life.[1]

Population aging is now one of humanity's greatest triumphs and challenges, and therefore a challenge for public health. Since the beginning of the 21st century, the world is aging rapidly, i.e., a longevity revolution is taking place. As a result of a rapid reduction in mortality and fertility, together with an increase in life at birth in all countries, about 810 million people are aged 60 and over. Every second, two people in the world celebrate their 60th birthday. The year 2050 will be the demographic tipping point. By that year, 22 % of the world's population will be 60 and over, representing more than two billion of these people, compared to 12 % in 2015 (900 million). But this population increase will occur mostly in low- and middle-income countries, which will rise to 80 % by 2050.[1]

The countries of Latin America and the Caribbean share similar demographic trends that will considerably affect the strategies for achieving universal health coverage, so that in 2025 there will be around 100 million, representing 15 %, and by 2050 they will represent 25 % (183.7 million).[1]

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In old age, most people are able to have a normal life and functional independence, so they face the process of change at an adequate level of functional adaptability and personal satisfaction. However, in the biological dimension there is a progressive deterioration, such as sleep cycle, food and nutrition, physical activity, sexual appetite, even more if there is an associated disease. There may be incontinence or urinary retention, which causes great discomfort, hygiene problems, depression, isolation and anxiety. The most affected senses are sight and hearing, with the presence of presbyopia and presbycusis, which affects their relationship life, independence and enjoyment of the surrounding environment.[1]

The World Health Organization (WHO) describes aging as a complex multifactorial process, characterized by progressive physiological and multisystemic changes largely genetically determined; these are negatively influenced by factors such as: sedentary lifestyle, chronic diseases, nutritional alterations and low socioeconomic level among others, which increase the risk of functional limitation, dependence and disability in the older adult (MA). Thus, the WHO states that the health status of the MA should be expressed in terms of his or her functional capacity and level of social participation. The functional fitness (FPC) of the MA, understood as the physiological capacity to perform daily activities safely, independently and without excessive fatigue, is a well-documented determinant of healthy longevity, which depends on physical parameters such as strength, flexibility, agility/dynamic balance and aerobic capacity. Higher levels of CFF have been associated with lower mortality risk, greater functional independence, and better health-related quality of life.[2]

The physiological changes of aging, along with the presence of comorbidities, medication use, and social isolation have an impact on nutritional insufficiency and body composition. With advancing adulthood, changes in anthropometric measurements can be observed. Older people are more likely to experience reduction in muscle mass and stature, loss of bone mass and alteration of its components, and reduction and redistribution of body fat (intra-abdominal fat accumulation). Cross-sectional and longitudinal studies show that the changes are more evident in the very old and that there are differences between the sexes.[3]

That is why the integral support to the elderly and their total integration to society, constitutes an eminently political objective, whose satisfactory solution can only be undertaken and realized gradually in socialism and it is with the work of the family doctor, where a valuable point of support is found in the social environment, so that all those psychological aspects that favor a normal and satisfactory aging are taken into consideration. Aging is a human challenge for individuals committed in all societies to improve the quality of life of the human species.[4]

With age, the incidence and prevalence of many chronic degenerative diseases increase, which can cause disability, deterioration of the quality of life, but also excessive use of resources of all kinds to cope with them, being able to prevent them would be ideal, however, in addition to the nature of the human being, the environment surrounding the individual cannot be ignored.[5]

Today it is known that human life is not only determined by the biological aspect of the individual, but is directly influenced by biological and ecological factors, without underestimating the importance of psychological, social and cultural factors. Individual aging is the hitherto irreversible process of evolution that each person undergoes in the course of his or her life, while population aging is the increase in the number of older adults with respect to the population as a whole to which they belong.[6]

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In the present century we are living what many have called a "unique moment", because for the first time in the history of mankind, several generations coexist. This demographic dynamic in the world and in Cuba in particular, is both an achievement and a challenge. Recognizing that this phenomenon involves health and other sectors of society and that it also requires inclusive and creative resources in public policies, so that this prolongation of life is of quality, is essential for sustainability. The new conceptions in the gerontological field lead to the need to integrate the individual in a multidisciplinary and multisectoral way, not only to face this phenomenon of population aging from the social point of view, but also, at the individual level, to learn to age with quality.[7]

Population aging is currently the focus of international attention, a problem from which it is difficult to exempt any society on the planet. It is occurring in all regions of the world, but is increasing more rapidly in countries at different levels of development, including those that also have a significant proportion of young people.[8]

At a time when there is a proliferation of concern and occupation on the part of professionals on the subject of population and individual aging, with the challenge that this prolonged life be lived with quality, a critical and reflective look at the context is made. It is agreed that it would not be unwise but, on the contrary, very opportune to undertake research to shed light on the improvement and preservation of the human essence, in which the ethical dimension could reveal what has been created (good and not so good).[7]

Thus, the increase of the population over 60 years of age in the last decades has generated an inquiry about the factors that affect their autonomy and quality of life. A look at the aging process -from the perspective of anthropology- makes it possible to identify factors that make this stage of life a more bearable experience. The importance of the health/illness condition, the transcendence of a stable economic condition, the relevance of living and dying in company, the different experience of old age according to gender and the growing need for aging to be considered a social responsibility in view of the scarce institutional support, among other aspects.[9]

Anthropometry, which is a simple, objective and relatively inexpensive method, plays a very important role in this comprehensive and necessary approach. Anthropometric measurements are used to monitor changes over time, which allows early diagnosis and prevention of diseases in the elderly. In addition, caloric and protein reserves can be determined, as well as the presence of risk factors related to the disease, both by deficit and excess, which is why they represent a relevant tool in both clinical and epidemiological practice. Figures located near the upper range are associated with a marked increase in risk and levels significantly higher or lower than these established ranges are not recommended, due to their negative consequences for health.[10]

To evaluate anthropometrically the growth, development and nutritional status associated with the elderly.

METHODS

An observational, descriptive and cross-sectional study was developed. The universe under study was represented by 260 older adults of the Pinar del Río nursing home, and the sample was intentionally formed by 122 older adults.

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To process the data obtained during the research, qualitative and quantitative variables were used, the information was stored in a database in Microsoft Office Excel, for its processing the methods of descriptive statistics, absolute frequency (AF), relative frequency (RF) and the percentage method were used, emphasizing the most significant results from the statistical point of view. Descriptive measures of central tendency and dispersion (mean and standard deviation) were used for the variables studied with $p<0,05$.

We worked under bioethical principles, complying with the confidentiality of the information provided, taking into account the respect or autonomy of the person. The research was carried out respecting medical ethics.

RESULTS

It can be seen that there is a predominance of older adults in the range 70-74 years of age, with 22,9 % and the male sex with 56,6 %. (Table 1)

Table 1. Distribution of older adults according to age and sex. Home for the Elderly. Pinar del Río. 2021.

Age group (years)	Sex				Total	
	Female		Male			
	No.	%	No.	%	No.	%
60-64	7	5,7	9	7,4	16	13,1
65-69	13	10,7	10	8,2	23	18,9
70-74	11	9,0	17	13,9	28	22,9
75-79	10	8,2	15	12,3	25	20,5
80 -84	6	4,9	13	10,7	19	15,6
85-89	5	4,1	4	3,3	9	7,4
90 and over	1	0,8	1	0,8	2	1,6
Total	53	43,4	69	56,6	122	100

There is a predominance of normopese older adults, with 47,5 %, with a tricipital crease at the 50th percentile, 45,9 % and arm muscle circumference at the 50th percentile, 44,3 % (Table 2)

Table 2. Anthropometric assessment of older adults according to BMI, tricipital fold and arm muscle circumference.

Indicator		No.	%
BMI	Malnourished by excess	48	39,3
	Normal weight	58	47,5
	Malnourished by defect	16	13,1
Tricipital fold	Less than 50th percentile	15	12,3
	Percentile 50th	56	45,9
	More than 50th percentile	51	41,8
Arm Muscle Circumference	Less than 50th percentile	47	38,5
	50th percentile	54	44,3
	More than 50th percentile	21	17,2

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DISCUSSION

There is partial agreement with the study of Hernández Rodríguez,[5] who states that chronological age is perhaps the simplest way of considering old age. In his study, 37,70 % corresponded to the 70-79 years age group, followed by the 80-89 years age group (31,15 %). Regarding sex, 59,02 % were represented by women.

This does not coincide with a study carried out at the "Julio Díaz González" Rehabilitation Hospital in Havana, where 85,70 % of the elderly were female and 14,30 % male, with a predominance of the 65-74 age group.[11]

In a study carried out by Otero Mildred R,[12] on a population of older adults, women predominated, which does not agree and also differs from that carried out by Tejera Ibarra,[13] where, according to age, subjects between 65 and 70 years of age prevailed.

In the work of Laguado Jaimes E,[14] there is a predominance of 60 older adults in the two welfare centers, with a predominance of the 75-84 age range, with 22 older adults, which corresponds to 26,66 %; male gender with a higher frequency (53,33 %) with respect to female. The author states that this is due to the fact that men more often end up alone and limited in their ability to meet the demands of daily life, so they seek support in social institutions, as opposed to women, who tend to stay at home, assuming various activities for the benefit of the rest of the family and specifically in the care of children.

She also disagrees with Miranda Pérez,[15]) who refers in her study that women predominated with 64,44 % and the age group from 65 to 70 years old with 57,78 %.

In the author's opinion, it differs with the study of Hernández Rodríguez,[5] who states that 63,93 % of the elderly studied were evaluated as malnourished by excess according to the body mass index, 40,98 % had a tricipital fold above the 50th percentile. Similarly, 42,62 % had an arm muscle circumference above the parameters established as normal for this age.

In another study, with which we agree, morbidity and mortality in older adults is identified as a risk when the BMI is at low or high values. Even when criteria validated for younger ages are used in this population group, the highest percentage of the population studied was classified as normal weight. However, the tendency is for these values to be located around the minimum values of normality.[16]

Regarding the nutritional status of older adults, in an investigation in institutionalized elderly in Pinar del Río, Valdés-González,[17] observed that, in the distribution according to BMI and sex, the majority (61 %) were between 21-23 kg/m2 of body surface and women predominated (37,8 %). The factors associated with low BMI and weight loss were: poor oral intake, eating dependence, pressure ulcers and chewing problems. Being 85 years of age or older, being a woman, being bedridden or having suffered a femur fracture were identified as factors that increased the risk of having a low BMI and having depressive symptoms; having two or more chronic diseases increased the risk of weight loss. Study with which we agree.

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In another study, BMI was used as a risk factor in the search for malnutrition by default, since it has been shown that BMI lower than 24 increases morbidity and mortality in this population group, and BMI higher than normal is related to increased morbidity due to arterial hypertension, diabetes mellitus, dyslipidemia and cerebrovascular diseases, among other chronic ailments. As a positive aspect in the investigation, no patients with malnutrition by default were detected, although only 9,5 % of the cases studied had a normal BMI, 90,5 % had some degree of alteration in this anthropometric index. Forty-seven point six percent were overweight and 42,9 % of the sample had some degree of obesity. This study is partially coincident.[18]

Some researches refer to the importance of carrying out a nutritional evaluation of the elderly in order to detect early any alterations that may occur. Regarding the anthropometric results, they are not similar to those found by González González et al,[19] where patients with inadequate BMI predominate, with significant degrees of obesity and overweight, factors that are considered relevant if we take into account the morbidity associated with older adults, which in many occasions affects the autonomy of patients and an adequate development of daily life activities. This finding is important since both high and low BMI values are associated with an increased risk of disease. While low values are related to tuberculosis, chronic obstructive pulmonary disease, lung and stomach cancer; high values are related to vascular diseases, brain diseases, obstructive coronary disease and diabetes.[20]

At the national level, although Guevara,[20] in his study identified that 10 % of older adults presented malnutrition. Córdova,[21] and collaborators found that the frequency of malnutrition was much higher (64,3 %) in elderly nursing home residents. The differences between the results are due to the notable methodological differences in the evaluation of nutritional status and the origin of the study sample. Studies with which we do not agree.

We agree with Navarrete Espinoza,[22] who states in his study that the identification of anthropometric profiles such as the tricipital fold and BMI, explain body composition, through multivariate techniques, serving as predictors of diseases such as arterial hypertension and thus characterizing the probability of cerebrovascular disease and chronic kidney disease.

Height presents a concomitant reduction with age, influenced by organic, intrinsic or extrinsic factors. Even at advanced ages, men have greater height than women and therefore lower BMI.[23]

In Holguín, a recent cross-sectional study in older adults revealed high prevalence rates of obesity, excess weight and arterial hypertension.[24]

CONCLUSIONS

The measurement of the different anthropometric measurements in the elderly allows an integral diagnosis and stratification of risks and complications.

Conflict of interest
The authors declare that there are no conflicts of interest.

Authors' contribution
DAP and MDC: conceptualization, formal analysis project management, and writing.
EDP and JVC: conceptualization, data curation, research, and writing the original draft.
YFM and AFR: formal analysis, writing the original draft, and revision.

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Additional material
Additional material to this article can be consulted in its electronic version available at: www.revcmpinar.sld.cu/index.php/publicaciones/rt/suppFiles/5615

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