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Literature review

Aging and the prevention of cardiovascular diseases: A perspective from the science of family medicine

Aging and prevention of cardiovascular diseases. A look from the science of family medicine

Treatment and prevention of cardiovascular diseases. A view of the science of family medicine

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SUMMARY

Controversies have arisen regarding the best strategies for preventing cardiovascular disease in the elderly, given the low number of patients in this age group included in most prevention clinical trials. To gather information on aging and cardiovascular disease prevention in the context of primary healthcare, a narrative review was

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conducted. The search was performed using the PubMed, InfoMed, and SciELO databases, without date restrictions, in both Spanish and English. The challenge posed by population aging to the economy, society, and particularly public health underscores the need for health promotion and the prevention of risk factors to improve the health of these patients and enhance their quality of life. Despite the level of development achieved by the health system and the country's political, economic, and social scenarios, the quality and preparation of the human capital created, which allows working on objective bases, is insufficient in the search for scientific solutions for the design of a tool in primary health care, aimed at identifying in a timely manner the elderly adult patients with greater susceptibility to suffer a cardiovascular event.

Keywords: Aging; Primary prevention; Cardiovascular diseases; Family medicine.

ABSTRACT

Controversies are revealed regarding the best cardiovascular diseases prevention strategies in the elderly, given the low number of patients in this age group included in most clinical prevention trials. With the objective of collecting information on aging and the prevention of cardiovascular diseases in the context of primary health care, a narrative review on this topic was carried out. The search was carried out by consulting the Pubmed, Infomed and SciELO databases, without date restriction, in Spanish and English. The contradiction due to the challenge that the population aging process represents for the economy, society and in particular for public health, infers the need for health promotion and prevention of risk factors to improve the health of these patients. and raise their quality of life. Despite the level of development reached by the health system and the political, economic and social scenarios of the country, the quality and preparation of the human capital created, which allows working on objective bases, the search for scientific solutions for the design of a tool in primary health care, aimed at timely identification of older adult patients with greater susceptibility to suffering a cardiovascular event.

Keywords: Aging; primary prevention; Cardiovascular diseases; Family Medicine.

ONLINE VERSION: ISSN 1028-4818
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SUMMARY

Controversies are revealed regarding the best strategies for the prevention of cardiovascular diseases in children, given the small number of patients of this age group included in most of the clinical trials of prevention.In order to collect information on the development and prevention of cardiovascular diseases in the context of primary health care, a narrative review on the topic was carried out.The search was carried out by consulting the databases Pubmed, Infomed and SciELO, without data restriction, in the Spanish and English languages. A contradiction due to the challenge that the process of population development represents for the economy, society and, in particular, for public health, infers the need for health promotion and prevention of risk factors to improve the health of these patients and improve their quality of life. Despite the level of development achieved by the health system and two political, economic and social scenarios of the country, the quality and preparation of human capital created, which allows us to work on objective bases, in search of scientific solutions for the development of a tool in primary health care, aiming to identify patients in a timely manner Those with greater susceptibility to suffering a cardiovascular event are insufficient.

Key words: Envelhecimento; Primary prevention; Cardiovascular diseases; Family Medicine.

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Introduction

The number of people reaching old age is steadily increasing, and significant growth is expected over the next 50 years due to the demographic transition they are undergoing. This is accompanied by a higher prevalence of age-related non-communicable diseases.

(1) Their proportion is increasing in all populations; in 2019 it stood at 1 billion, a figure that will rise to 1.4 billion by 2030. This increase is occurring at an unprecedented rate, particularly in developing countries. (2)

In 2021, globally, cardiovascular deaths totaled 17.5 million, representing 30% of all deaths that year. Of these, 7.4 million were due to coronary heart disease and 6.7 million to stroke. If the current situation continues, it is projected that by 2025 there will be more than five million premature deaths worldwide from cardiovascular diseases (CVDs), and in Latin America (LA) the increase is expected to be 22%. (3)

At the close of 2021, heart disease was the leading cause of death in Cuba, with 26,736 deaths, representing a rate of 384.9 per 100,000 inhabitants. Cerebrovascular diseases were the fourth leading cause of death, with 10,008 deaths, representing a rate of 114.1 per 100,000 inhabitants. Both diseases affected more than 90% of the population aged 60 and over. The province of Santiago de Cuba had one of the highest rates, with 381.2 deaths per 100,000 inhabitants for heart disease and 110.6 deaths per 100,000 inhabitants for cerebrovascular diseases, exceeding the national average. (4)

Based on the above, it is clear that health promotion and the prevention of risk factors are necessary to improve health and raise quality of life. In this regard, the United Nations General Assembly declared the period 2021-2030 as the Decade of Healthy Ageing. (5)

In turn, the WHO has declared CVD as one of the priority diseases within its action plan, with the aim of reducing CVD-related mortality by 25% by 2025. (6)

The limited competence of the general practitioner to achieve an adequate assessment of cardiovascular risk in older adults, as well as the intersectoral integration in promotion and prevention actions, motivated the authors to collect information on aging and the prevention of cardiovascular diseases in the context of primary health care.

Methods

At the Ramón López Peña Community Polyclinic in Santiago de Cuba, between September and November 2020, a narrative literature review was conducted. Original articles and systematic reviews containing information on aging and cardiovascular disease prevention were analyzed. The search was performed using the PubMed, InfoMed, and SciELO databases, without date restrictions, in both Spanish and English. The Google Scholar search engine was used, employing the keywords and connectives: aging AND primary prevention; aged AND cardiovascular diseases; and the Spanish terms. Data extraction was performed using a form that summarized the questions of interest according to the review's objective.

Development

1.1 Definition of aging

A continuous, heterogeneous, universal, and irreversible process that determines a progressive loss of adaptive capacity. It is also a variable phenomenon, influenced by multiple factors rooted in the genetic, social, and historical context of human development. It is permeated by culture and social relations, such that it is not clear to pinpoint the stage of life at which one enters old age, and the concept of old age is increasingly structured from both individual and social perspectives. In this sense, aging is a social construct. (7)

1.2 Aging and CVD

Aging, as noted in this review, is characterized by the decline of the body's physiological functions and, therefore, a progressive decrease in its capacity to react and respond to the environment. The most important underlying process is chronic low-grade inflammation, which results in a reduction of the functional reserve of the various organs and systems. Its progression leads to a state of frailty with a lack of response to external stressors. (8)

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1.3 Policies of different organizations in relation to aging

On December 14, 1990, the United Nations General Assembly designated October 1 as the International Day of Older Persons to recognize the contribution of older adults to economic and social development, as well as to highlight the opportunities and challenges associated with population aging. In 1991, the General Assembly adopted the United Nations Principles for Older Persons, and in 2002, the second World Assembly on Ageing defined the Madrid International Plan of Action on Ageing to address the opportunities and challenges of population aging in the 21st century and to promote the development of a society for all ages. (9)

The Sustainable Development Goals (SDGs) 2030 (10) have the purpose of ensuring progress and sustainable development throughout the world, and strengthening universal peace within a broader concept of freedom, maintaining the universal, public and free nature of the health system, as well as ensuring its sustainability.

Goal 3: Health and well-being

This objective is closely related to the other objectives, since health is one of the areas where multiple interactions between man and the environment are reflected.

Goal 3.8 aims to achieve universal health coverage, access to quality essential health services and access to safe, effective, affordable and quality medicines and vaccines for all, which are closely related to aging according to the Pan American Health Organization (PAHO). (11).

For the Americas region, it is estimated that by 2030, one in six people will be 60 years of age or older. In 2019, 16% of the region's population was over 60, and this figure is projected to reach 36% by 2100. The number of years lived with a disability for the population aged 80 and over has increased by approximately 77% over the past decade and a half.

The political sector and decision-makers in developing countries are naturally concerned with economic growth; however, data on the impact of the burden of disease and mortality caused by chronic non-communicable diseases, and in particular cardiovascular diseases, indicate that it would be illogical and irresponsible to focus solely on economic growth while ignoring these diseases.

Cuba is one of the most aged countries in Latin America. The magnitude of this aging and the speed at which the population pyramid has changed pose a concern for the coming years.

The current life expectancy at birth, 84.7 years for women and 80.1 years for men, places the country in a privileged position within the hemisphere and at the same time highlights the dedication of human and material resources that the Cuban state has made available to the entire population.

The first National Comprehensive Care Program for Older Adults emerged in 1974, and in 1985 the family doctor and team care variant was incorporated, which has the purpose of guaranteeing health care tailored to the needs of these people and ensuring that they live an active and healthy old age. (12)

This program, in addition to providing support for the elderly, will be applicable at all levels of care, including not only health, but also social security, sports, culture, legislation, among others.

At the close of 2020, a year marked by the impact of SARS-CoV-2, the virus that causes the COVID-19 pandemic, the country registered an increase in the number of people over 60 years of age, with 21.3% of the Cuban population reportedly in that age group. Despite the coronavirus and the country's tense economic situation, aggravated by Washington's policies, two nursing homes were inaugurated, one in Matanzas and the other in Pinar del Río, bringing the total to 157 in the nation with some 12,561 beds. (13)

The National Program for Comprehensive Care for the Elderly will continue to address the needs of this growing population, while promoting their inclusion in economic, political, and social activities, and the majority employment of those able to work; however, it is considered that this program should be updated, contextualized to the current historical moment, when aging has become the main demographic challenge.

The basic health team constitutes the first level of geriatric care in the community, since, due to its permanence in the community, this team is able to address the health aspects of older adults, establish continuous outpatient follow-up and even home admission.

The tool that the family doctor and nurse have to start the evaluation process of older people is the periodic health examination (PHE).

The Comprehensive Family Care Program recommends that these individuals should be registered and evaluated by the basic health team at least annually in a comprehensive manner, which allows for knowing their baseline status and assessing any changes that may occur early; however, it does not include an instrument that allows for timely detection of cardiovascular diseases and risks, with primary, secondary, or tertiary prevention and promotion measures.

1.4 WHO and PAHO Programme on Cardiovascular Diseases.

To accelerate the health sector's response to cardiovascular diseases, the WHO global strategy and the PAHO regional strategy state that the capacity of health systems must be strengthened to focus more on health promotion and primary health care, with a view to intensifying prevention and improving healthcare. This will ensure that individuals receive effective and timely prevention, diagnosis, treatment, and rehabilitation services to recover their cardiovascular health as quickly as possible and achieve a prompt return to their normal activities. This includes developing effective systems that can direct individuals and patients to the primary, secondary, and tertiary levels of care, as needed. (6,14)

Regarding non-communicable diseases, SDG 2030 (10), in its target 3, establishes as goal 3.4 the reduction of premature mortality from non-communicable diseases by one-third through prevention and treatment, using the mortality rate attributed to cardiovascular diseases as an indicator. It is noteworthy that this target is directed at the younger population, when the incidence and mortality of these diseases are increasing among older adults.

In Cuba, the objective of the Cardiovascular Disease Control Program is to effectively control risk factors and reduce morbidity and mortality from these diseases.

Addressing this problem, theGuidelines of the Economic and Social Policy of the Party and the Revolution, (15) approved at the VI Congress of the Communist Party of Cuba define in Chapter VI Social Policy, in guidelines 96 and 97: the need to provide universal health assistance, which allows the satisfaction of the population, with high medical ethics, starting from the promotion and prevention of diseases and their follow-up.

The author's accumulated experience allows her to affirm that compliance with this policy demands adequate preparation of medical personnel and greater intersectoral actions to raise the quality of life of older adults and the population in general.

1.5 Cardiovascular risk in older adults

The determination of global cardiovascular risk (CCR) refers to the estimation of the probability of presenting a fatal or non-fatal cardiovascular event in a given period of time, generally of five or 10 years, there are several models with that objective, (16) those used in Cuba are extrapolated from instruments of other regions.

Several models, scales, and tables for stratifying cardiovascular risk have been validated worldwide, such as the Framingham Risk Score, considered classic because it has given rise to various adaptations and versions. (17) In Cuba, the guidelines for the diagnosis, treatment, and follow-up of hypertension and the cardiovascular risk stratification for the general population were updated in 2021. (18)

Recently, an article was published on the risk scale for the Spanish elderly population (EPICARDIAN), (19) and the ASPirin in Reducing Events in the Elderly study (ASPREE) (20) a predictive model of CVD, with older people in Australia and the USA.

Despite the existence of different cardiovascular risk prediction tables, and the fact that the 2021 European guidelines for cardiovascular prevention estimate the CV risk in people aged 70 years or older with the Systematic Coronary Risk Evaluation Older People (SCORE2-OP), (21) there is no definitive risk calculator model for the Cuban elderly population, therefore, the goals established in the CVD prevention strategies for this vulnerable population group are not achieved.

The stratification of the RCG in older adult patients offers a vast field of research given the objective limitations of the scales most commonly used in daily clinical practice. (22)

The assessment of cardiovascular risk, especially at the primary care level in developing countries, provides invaluable input for patient management and sets guidelines for follow-up and the intensity of interventions, with a preventive approach to cardiovascular events. (23)

The stratification of cardiovascular risk (CVR) using scales is a fundamental pillar for making therapeutic decisions, and its determination constitutes the cornerstone for establishing prevention policies for cardiovascular diseases. In this way, once known, modifiable risk factors can be addressed, thus preventing the prognosis from being fulfilled. (24)

These problematic situations reveal the sociocultural and humanistic contradictions between the shortcomings in the performance of specialists in MGI regarding the promotion and prevention of cardiovascular diseases, and the educational and preventive actions to avoid the negative psychological and social consequences that may limit the quality of life of patients, even causing death.

Today's complex challenges, ranging from halting the spread of disease to preventing conflict, cannot be efficiently addressed in isolation.

From the perspective of family medicine, achieving healthy lifestyles is a challenge; only in this way can fundamental needs be met, quality of life improved, and human development in terms of well-being attained. Another challenge for the field is to enhance the competence and performance of family physicians in providing comprehensive care to older adults, to implement a risk scale that is applicable and can be extrapolated to the Cuban older adult population, and to adapt programs to current conditions, such as the older adult program and the family care program.

1.7 Ethical aspects

One ethical aspect related to the program for chronic non-communicable diseases such as cardiovascular diseases is that the patient feels that the doctor is not a biological engineer who prevents them from getting sick or cures them if they have not been able to prevent the disease, but rather that they are dealing with a person who knows what they are doing and does it well, who helps them understand how and why they should change their lifestyle to promote their health and avoid diseases, and who, if they do eventually get sick, helps them understand their illness to make treatment easier and thus allow them to overcome the disease quickly.

Cardiovascular disease is not curable; its treatment is lifelong. Therefore, it is so important to follow the treatment prescribed by the specialist and to have meticulous control of the main risk factors: hypertension, high cholesterol, diabetes, obesity, sedentary lifestyle, smoking, and alcohol abuse, among others.(25) Precisely aspects related to the functions of the family physician carry within themselves a great ethical burden, since it is the family physician and nurse who have the moral responsibility to identify the determining factors of the health-disease process and, consequently, to promote the necessary favorable changes.

Conclusions

Undoubtedly, population aging is a palpable reality for present-day Cuban society, posing challenges to the health system both in terms of material resources and the human resources it represents. This situation is further complicated by the increase in elderly people with a high susceptibility to cardiovascular events and the lack of effective methods and tools for prevention and identification in Primary Health Care.

Bibliographic references

1. World Health Organization. Ageing [Internet].Washington DC: WHO;2021. [cited 04/03/2023]. Available from:https://www.who.int/es/health-topics/ageing#tab=tab_1

2. United Nations. Aging [Internet].New York: UN; 2021 [cited 09/03/2022]. Available from:https://www.un.org/es/global-issues/ageing

3. Suárez FO. Sociodemographic and economic factors associated with cardiovascular mortality in South American countries [Thesis]. Trujillo, Peru: Cesar Vallejo University; 2022. [cited 2023/03/14]. Available from:https://repositorio.ucv.edu.pe/bitstream/handle/20.500.12692/87568/Su%c3%a1rez_MFO-SD.pdf?sequence=1&isAllowed=y

4. Cuba. Ministry of Public Health. Statistical Yearbook 2021 [cited 12/04/2023]. Available from:https://instituciones.sld.cu/fatesa/files/2022/11/Anuario-Estad%C3%ADstico-de-Salud-2021.-Ed-2022.pdf

5. World Health Organization. Decade of Healthy Ageing2021-2030 [Internet]. Washington DC: WHO; 2022 [cited 2023 Apr 24]. Available from:https://www.who.int/es/initiatives/decade-of-healthy-ageing

6. World Health Organization. Cardiovascular Diseases. Washington DC: WHO; 2020 [cited 28/04/2023] Available from:https://www.who.int/es/health-topics/cardiovascular-diseases#tab=tab_1

7.Lind L, Sundström J, Ärnlöv J, Lampa E. Impact of Aging on the Strength of Cardiovascular Risk Factors: A Longitudinal Study Over 40 Years. J Am Heart Assoc. 2018; 7(1):e007061.

8.Koroukian SM, Schiltz N, Warner DF, Sun J, Bakaki PM, Smyth KA, et al. Combinations of Chronic Conditions, Functional Limitations, and Geriatric Syndromes that Predict Health Outcomes. J Gen Intern Med. 2016; 31(6):630-7.

9. United Nations Organization.International Day of Older Persons, October 1[Internet]. New York: UN; 2022 [cited 05/05/2023] Available from:https://www.un.org/es/observances/older-persons-day

10. United Nations Organization.The SDGs in action. United Nations Development Programme [Internet]. New York: UN; 2020 [cited 2023 May 14]. Available from:**https://www.undp.org/es/sustainable-development-goals**

11.Pan American Health Organization / World Health Organization. Healthy Aging[Internet]. Washington DC: PAHO/WHO; 2022. [cited 2023 May 19] Available fromhttps://www.paho.org/es/healthy-aging

12. Provincial Center for Health Promotion and Education. Comprehensive Care Program for the Elderly. Santiago de Cuba: CPPES; 2022. [cited 13/06/2023] Available from:https://instituciones.sld.cu/promocionscu/programas-de-salud/programa-integral-de-atencion-al-adulto-mayor/

13. Cuba. Ministry of Public Health. The National Program for the Care of the Elderly [Internet]. Havana: MINSAP; 2021. [cited 2023 Jun 14]. Available

from:https://instituciones.sld.cu/promocionscu/programas-de-salud/programa-integral-de-atencion-al-adulto-mayor/

14. Pan American Health Organization. Cardiovascular Diseases [Internet]. Washington DC: PAHO; 2020 [cited 2023 Jun 18]. Available from:https://www.paho.org/es/temas/enfermedades-cardiovasculares

15. Communist Party of Cuba. Conceptualization of the Cuban economic and social model of socialist development. [Internet]. Havana: PCC; 2021. [cited 18/6/2023]. Available from:https://www.pcc.cu/conceptualizacion-del-modelo-economico-y-social-cubano-de-desarrollo-socialista

16.Pencina MJ, Navar AM, Wojdyla D, Sanchez RJ, Khan I, Elassal J, et al. Quantifying Importance of Major Risk Factors for Coronary Heart Disease. Circulation. 2019; 139(13):1603-11.

17.WHO CVD Risk Chart Working Group. World Health Organization cardiovascular disease risk charts: revised models to estimate risk in 21 global regions. Lancet Glob Health. 2019; 7(10):e1332-e45.

18. Pérez MD, Valdés Y, Pérez L, López Lima C, Jimenez Chiquet A, Orduñez Garcí P. Arterial hypertension in adults. Action guide for primary health care [Internet]. Havana: MINSAP; 2021. [cited 2023 Jun 24]. Available from:https://temas.sld.cu/hipertension/files/2022/02/GU%c3%8dA-DE-ACTUACI%c3%93N-FINAL-6.12.21.pdf

19.Gabriel R, Muñiz J, Vega S, Moral I, Pérez Castro TR, Rodriguez-Salvanés F, et al. Cardiovascular risk in the elderly Spanish population. EPICARDIAN risk scale. Rev Clin Esp (Barc). 2022; 222(1):13-21.

20. Neumann JT, Thao LTP, Callander E, Carr PR, Qaderi V, Nelson MR, et al. A multistate model of health transitions in older people: a secondary analysis of ASPREE clinical trial data. Lancet Healthy Longevity. 2022; 3(2):e89-e97.

21. SCORE2 working group and ESC Cardiovascular risk collaboration. SCORE2 risk prediction algorithms: new models to estimate 10-year risk of cardiovascular disease in Europe. Eur Heart J. 2021; 42(25):2439-54.

22. Hierrezuelo N, Del-Rio G, Hernández A, Bonal Ruiz R. Cardiovascular risk calculators and their applicability in the elderly population of Cuba. Rev Cub Cardiol Cir Cardiov [Internet]. 2023 [cited 2023 Jul 04]; 29(2). Available from:https://revcardiologia.sld.cu/index.php/revcardiologia/article/view/1381

23. Paramio Rodríguez A, Aguilera García LL, Carrazana Garcés E, Hernández Navas M. Global cardiovascular risk in three nursing homes in the municipality of Boyeros. Rev Cuban de Med Gener Integr. 2021; 37(4):e1417.

24.Muthee TB, Kimathi D, Richards GC, Etyang A, Nunan D, Williams V, et al. Factors influencing the implementation of cardiovascular risk scoring in primary care: a mixed-method systematic review. Implement Sci. 2020; 15(1):57 - 73.

25. Hierrezuelo N, Álvarez J, Cruz J, Limia Dominguez AJ. Risk factors associated with cardiovascular diseases. Rev Cuba Cardiol Cir Cardiovasc [Internet]. 2021 [cited 2023 Jul 04]; 27 (4) Available from:https://revcardiologia.sld.cu/index.php/revcardiologia/article/view/1193/pdf

Conflict of interest

The authors declare that they have no conflict of interest.

Authorship contribution

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