NEW SYSTEMS OF CARE FOR HYPERTENSION

Urban Hypertension Management

LUIZ APARECIDO BORTOLOTTO

Director Hypertension Unit – InCor – HCFMUSP Professor of Cardiology Department Faculty Medicine of São Paulo University, Brazil President Brazilian Society of Hypertension 2021-2022

Arterial hypertension continues to be the chronic non-communicable disease with the greatest impact on mortality worldwide.¹ Furthermore, hypertension is responsible for the largest number of associated complications, with repercussions on the quality of life of individuals and on health costs. Recently, the World Health Organization (WHO) published its first report on the devastating global impact of hypertension, including recommendations on how to diagnose and treat this silent killer.¹

According to the report, the number of individuals living with hypertension (considering blood pressure values of 140/90 mmHg or more or taking medications) increase from 650 million to 1.3 billion between 1990 and 2019.1 This figure is equivalent to a third of the adult population worldwide, and without proper treatment, high blood pressure can cause stroke, acute myocardial infarction, heart failure, kidney failure as well as cognitive dysfunction and other health problems. Approximately half of those with hypertension are unaware of their condition, and approximately eight out of ten people with the diagnosis do not receive adequate treatment.¹ Thus, it is very important to implement global action programs to combat arterial hypertension.

It is noteworthy that more than 75% of adults with hypertension live in low and middle-income countries. Prevention, early detection, and adequate treatment and control of hypertension are among the most cost-effective health interventions and should be emphasized by all countries as part of their national health packages offered in primary care. The economic benefits of better hypertension treatment programs strongly outweigh the related costs. The WHO report estimates that if there is an increase in the number of hypertensive patients effectively treated for hypertension in these countries, reaching the same levels seen in highperforming countries, it will be possible to prevent 76 million deaths, 120 million strokes, 79 million incidents of acute myocardial infarction and 17 million cases of heart failure by 2050.¹

To achieve these numbers, it is important to develop programs that involve primary care, health professionals, the community and the government, working together.² One of the initiatives that has shown important success is the HEARTS program of WHO for the management of cardiovascular diseases in primary health care.³ This package, already applied in more than 40 low and middle-income countries, has reached more than 17 million people in Bangladesh, Cuba, India and Sri Lanka among others, and has helped ensure the strengthening of hypertension treatment.³ Other successful experiences have been applied in urban regions of low and middleincome countries, with the involvement of various sectors of society, and with very significant results.⁴ I want to highlight the initiative CARDIO4CITIES, a global multisector urban health initiative launched in 2018 in three low and middle-income settings, aiming to reduce the burden of hypertension and improve population cardiovascular health.^{5,6} The initiative included measures for a better quality of Care, early Access, policy Reform, Data and digital recordings, Intersectoral collaboration, and local Ownership (CARDIO4CITIES).⁵ The cities selected



for the program application were Ulaanbaatar (Mongolia), Dakar (Senegal), and São Paulo (Brazil).

In São Paulo, a district in the west region (Itaquera) was chosen to initially introduce the project. The program offered an extensive portfolio of health intervention options based on the local needs for hypertension care. Together, the city health authorities and local partners for the initiative (including medical societies such as the Brazilian Society of Hypertension) developed personalized intervention packages to address all the difficulties related to cardiovascular care in the population.⁵

The interventions included the following actions: 1) uniform hypertension approach for primary care health workers with easy algorithms and clinical decision support tools; 2) organized early screening for hypertension by BP measurements in health services and in places with a high number of people in the cities (such as subway stations, football stadiums or samba school rehearsals); 3) data registers for monitoring indicators of blood pressure control and outcomes; 4) supporting data-driven decision-making.^{5,6}

After less than two years of the implementation of the CARDIO4Cities program, BP control rates among patients in primary health centers increased from 12% to 31% in São Paulo, from 7% to 19% in Dakar, and from 3% to 19% in Ulaanbaatar (**Figure 1**).⁵ Besides that, in another study we model the long-term population health impact and cost-effectiveness of this multisectoral urban population health initiative, provide evidence that the multisector interventions adopted in the program could have a great impact to long-term CV health outcomes in the urban population, and are possible cost-effective.⁶

Thus, initiatives as the CARDIO4Cities approach and HEARTS program can be effective solutions to alleviate the growing cardiovascular disease burden in cities across the world.

Luiz Aparecido Bortolotto - hipbortolotto@gmail.com

Figure 1: Control rate of blood pressure before and twoyears after implementation of CARDIO4CITIES program



References

1. Global report on hypertension: the race against a silent killer. Geneva: World Health Organization; 2023.

2. Piot P, Aerts A, Wood DA, Lamptey P, Oti S, Connell K, et al. Innovating healthcare delivery to address noncommunicable diseases in low-income settings: the example of hypertension. Future Medicine; 2016. https:// doi.org/10.2217/fca-2016-0032 PMID: 27291058

3. Campbell NRC, Ordunez P, Giraldo G, et al. WHO HEARTS: A Global Program to Reduce Cardiovascular Disease Burden: Experience Implementing in the Americas and Opportunities in Canada. Can J Cardiol. 2021;37(5):744-755. doi:10.1016/j.cjca.2020.12.004.

4. Aerts A, Boufford JI. A new whole-of-city strategy for addressing cardiovascular population health. Cities & Health. 2021:1–7.

5. Boch J, Venkitachalam L, Santana A, Jones O, Reiker T, Rosiers SD, et al. Implementing a multisector publicprivate partnership to improve urban hypertension care in low-and middle- income countries. BMC Public Health. 2022; 22(2379).

6. Reiker T, Des Rosiers S, Boch J, et al. Population health impact and economic evaluation of the CARDIO4Cities approach to improve urban hypertension management. PLOS Glob Public Health. 2023;3(4):e0001480.