



The WHO Global report 2023 on hypertension warning the emerging hypertension burden in globe and its treatment strategy

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Received: 26 January 2024 / Accepted: 5 February 2024 / Published online: 5 March 2024
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Keywords Hypertension · Asia · WHO

Increasing hypertension burden in globe, especially in the WHO Asia Pacific/Southeast Asia region

The first WHO Global report on hypertension has been released [1]. The background of this report is emerging hypertension burden in globe, attributing in cardiovascular disease and all-cause mortality. This report emphasizes the urgent need to address hypertension and its associated complications, affecting over one billion people worldwide. It remains a significant public health concern, contributing to the onset of cardiovascular diseases, stroke, and premature death. According to the report, only 54% of adults with hypertension are diagnosed, 42% receive treatment, and a mere 21% have their hypertension controlled [1]. These statistics underscore the necessity for improved awareness and management of hypertension.

When examining the situation by region, the percentage of hypertensive adults in 2019 decreased in the WHO European region compared to 1990 but increased in Asian regions, particularly in the WHO Western Pacific Region (from 24% to 28%; including countries such as Australia, New Zealand, China, Republic of Korea, Philippines, Malaysia, Vietnam, and Japan) and in the WHO Southeast Asia region (from 29% to 32%; including countries such as India, Nepal, Indonesia, and Thailand). The number of hypertensive adults in the WHO Western Pacific region more than doubled in 2019 compared to 1990, with figures rising from 144 million to 346 million [1]. Furthermore, as depicted in the Graphic Abstract, there has been

a 41% increase in the number of adult hypertension patients over the past thirty years (1999–2019) in the WHO European region and the WHO region of the Americas. In contrast, the WHO South-East Asia and the WHO Western Pacific region experienced a significant 144% increase. Emphasizing the need for hypertension control is crucial, particularly in the WHO South-East Asia and the WHO Western Pacific region, to mitigate the global onset of cardiovascular diseases.

Home BP centered approach for eradicating uncontrolled hypertension

In the Global report on hypertension, uncontrolled hypertension is defined as having office BP > 140/90 mmHg, encompassing not only medicated uncontrolled hypertension but also undiagnosed and non-medicated hypertension. The global prevalence of uncontrolled hypertension has slightly decreased in this decade (26% in 2019, down by 3 percentage points compared to 2010); however, it has yet to meet the voluntary global target of 21%. Uncontrolled hypertension is more prevalent in Asian countries, with the exception of South Korea and Taiwan [2]. It's important to highlight that Asians generally seems to experience greater benefits (reduced the onset of cardiovascular disease, stroke, coronary artery disease and heart failure) from strict BP control compared to Western populations (Fig. 1) [3]. Namely, Asians stand to gain more from controlling hypertension. For strict management of hypertension control, home BP measurement has increasingly emerged as a key metric, supported by research findings that show a stronger association with cardiovascular risk factors compared to office BP [4, 5]. It gains endorsement more and more from recent guidelines and consensus documents [6, 7]. In the latest Taiwan hypertension guidelines, hypertension is defined solely based on home BP thresholds [8]. The HOPE Asia Network, a group of experts committed to achieving zero cardiovascular events in the Asia, has recently proposed for a

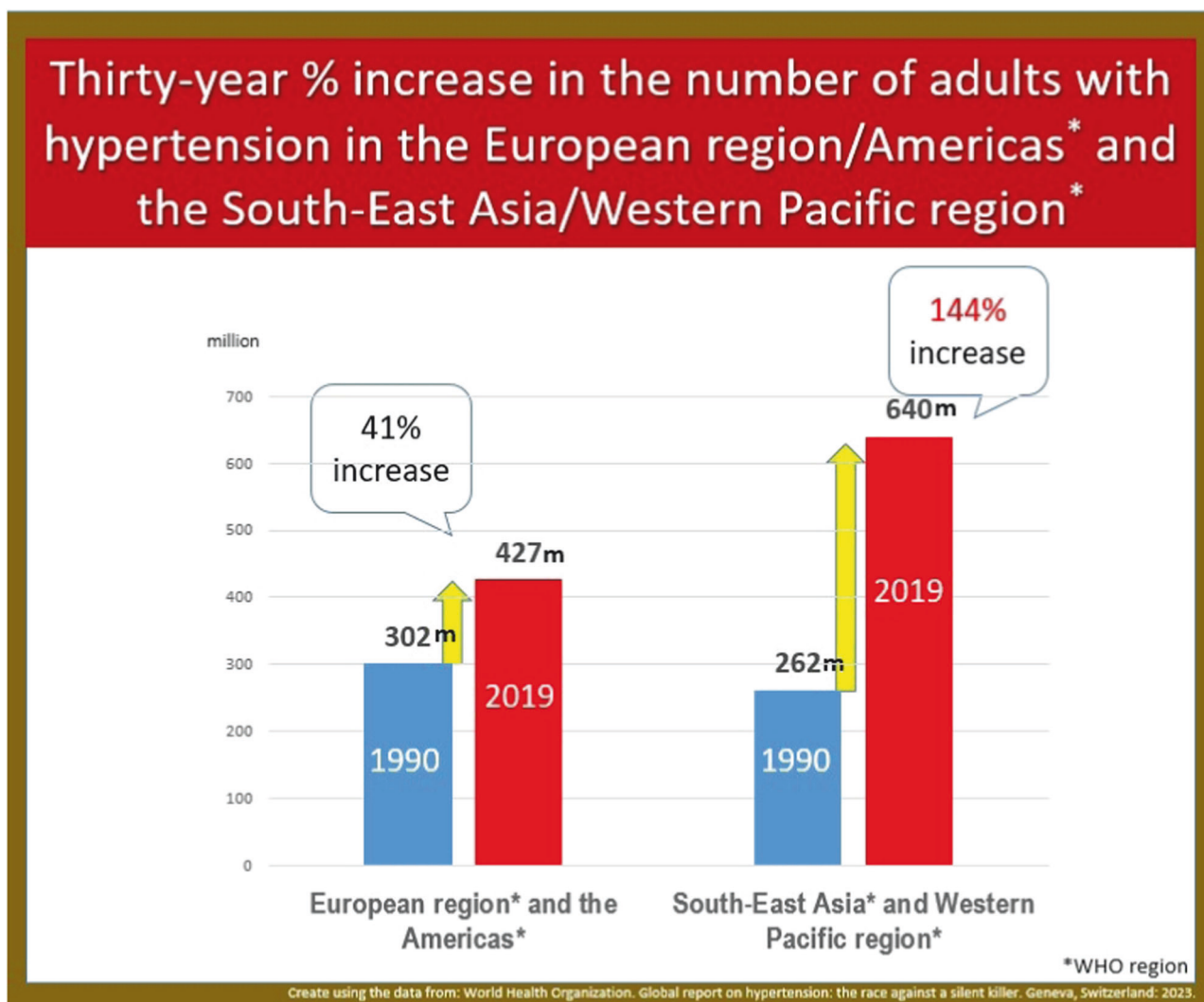
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Graphical Opinion

Thirty-year % increase of adults with hypertension in the European/ Americas and South-East Asia/ Western Pacific (WHO region). Create using the data from: World Health Organization. Global report on hypertension: the race against a silent killer. Geneva, Switzerland: 2023.



home BP-centered approach [9]. This approach includes self-measuring BP, enabling personalized anticipation medicine for the early prediction of cardiovascular risk throughout one's life (Fig. 2) [9]. This applies to both digital health for promoting healthy lives and digital medicine, including telemedicine, for treating hypertension patients with hypertension.

Tackling high salt intake

In the WHO report, it is highlighted that reducing salt intake and increasing potassium intake not only lowers blood pressure but also helps prevent cardiovascular events. The report emphasizes potassium-enriched salt substitutes as an

affordable strategy [1]. According to the GBD 2019 (Global Burden of Diseases, Injuries, and Risk Factors Study), excessive salt intake (5 g or more per day) contributed to 2 million cardiovascular disease deaths in 2019 [10]. A large prospective, epidemiologic study found a systolic blood pressure increase of 2.11 mm Hg for each 1-g increment in estimated sodium excretion [11]. Therefore, one effective approach to address this issue is to restrict salt intake. While the WHO recommends consuming less than 5 g of salt per day, salt intake levels vary widely among countries.

For instance, the African Region has an average daily salt intake of 6.7 g, while the Western Pacific region averages 15.6 g per day. A study conducted in Japan, focusing on salt restriction with nutritionist guidance, revealed a reduction in

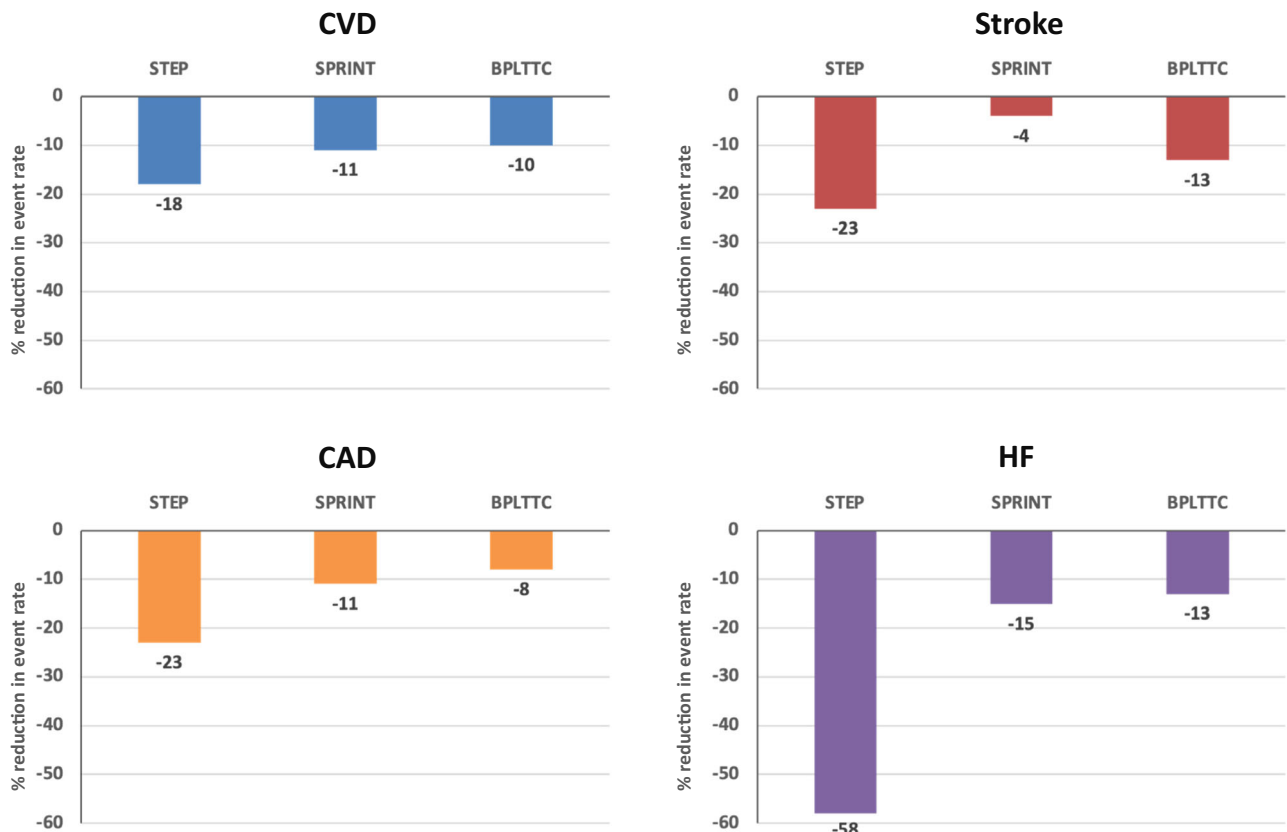


Fig. 1 Estimated cardiovascular risk reduction associated with a 5-mmHg reduction in office systolic BP (SBP) in the STEP (Zhang W et al. *N Engl J Med.* 2021;385:1268–79) and SPRINT (Wright JT Jr et al. *N Engl J Med.* 2015;373:2103–16.) studies, and the BPLTTC meta-analysis (Blood Pressure Lowering Treatment Trialists’ Collaboration. *Lancet.* 2021;397:1625–36.). BPLTTC BP Lowering Treatment Trialists’ Collaboration, CAD coronary artery disease (myocardial infarction [MI]/acute coronary syndrome), CVD cardiovascular disease, HF heart failure, SPRINT Systolic BP Intervention Trial, STEP Strategy of BP Intervention in the Elderly Hypertensive Patients. *CVD definitions as follows: STEP—composite of stroke (ischemic or hemorrhagic), acute coronary syndrome (acute MI and hospitalization for unstable angina), acute decompensated HF, coronary revascularization, atrial fibrillation, or death from cardiovascular causes; SPRINT—composite of MI, acute coronary syndrome not resulting in MI, stroke, acute decompensated HF, or death from cardiovascular causes; BPLTTC—composite of fatal or non-fatal stroke, fatal or nonfatal MI or ischemic heart disease, or heart failure causing death or requiring hospital admission. Source: Kario et al. [3]. Reprinted with permission

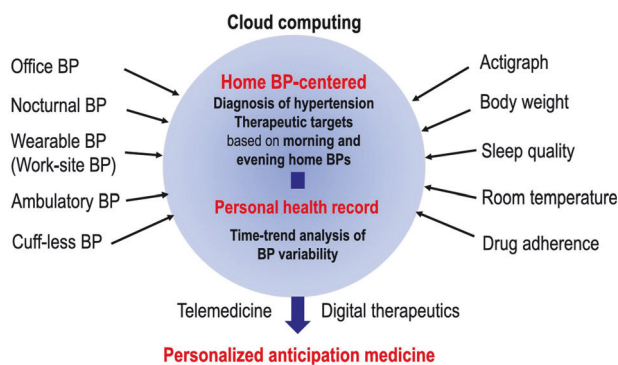


Fig. 2 Home blood pressure-centered approach for personalized anticipation medicine from digital health to medical practice. BP blood pressure. Source: Kario et al. [9]. Reprinted with permission

salt intake by an additional 1.8 g/day in hypertensive patients compared to a conventional education group [12]. By concentrating efforts on reducing salt intake, promoting

healthy diets, and encouraging increased physical activity, it is possible to prevent this life-threatening condition.

Recently, drugs that selectively inhibit the synthesis of aldosterone have been gaining attention as possible anti-hypertensive agents. Aldosterone plays a role in regulating fluid and electrolyte balance, leading to an increase in body fluid and enhancing the absorption of sodium by the kidneys. As one of the options for lowering blood pressure in patients with salt sensitivity or fluid-retaining hypertension, the results of future clinical studies are eagerly awaited.

Multidisciplinary team approach: the HEARTS technical package

Team approach with multidisciplinary professional medical staffs such as nurse, pharmacologists, et al. are recommended [1]. The report also mentioned utilizing a user-

centered, simple digital information systems to reduce data entry jobs of health care workers [1]. Team approach may reduce the burden of health professionals and enable patients to receive more detailed and attentive medical care. The HEARTS technical package, a core element of the Global Hearts Initiative launched by WHO and the United States Centers for Disease Control (CDC), consists of six modules and an implementation guide, including the Team-based care module was introduced in the report [1]. Endorsed by 11 WHO partner organizations such as the American Heart Association (AHA), the Centre for Chronic Disease Control (CCDC), and the International Society of Hypertension (ISH), it provides a public health approach to managing hypertension and cardiovascular risk factors at the primary health care level. This approach proves cost-effective in improving hypertension control, and is already being implemented in approximately 35,000 facilities worldwide [1].

The WHO report emphasizes the significance of non-pharmacological lifestyle modifications for nearly all hypertensive patients, coupled with pharmacological treatment [1]. Within the HEARTS technical package, ‘Healthy lifestyle counselling’ stands out as one of its integral components [13]. The package identifies unhealthy diet, insufficient physical activity, tobacco use, and harmful alcohol consumption as the four main behavioral risk factors for cardiovascular disease (CVD). All new patients diagnosed with hypertension are advised to quit smoking, limit alcohol consumption, maintain a healthy diet (including a lower-sodium diet and potassium-enriched foods), and engage in regular physical activity. The recommendations include consuming a variety of foods, such as fruits, vegetables, legumes, starchy tubers or roots, and foods from animal sources like meat, fish, eggs, and milk. Additionally, it suggests consuming more than 400 g of vegetables and fruits per day, keeping salt intake below 5 g, and ensuring that the amount of total energy consumed from fat is less than 30% for a healthy diet [13].

Conclusion

The first WHO Global report on hypertension provides scenarios for saving lives by scaling up hypertension treatment, along with practical examples from various countries’ efforts [1]. Since high blood pressure is an asymptomatic condition, early detection is crucial, and if detection is delayed, the prognosis worsens. This report serves as a catalyst for world leaders to focus on the silent killer, hypertension, and encourages countries and regions to collectively address the control of hypertension.

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

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