Editorial

Put pressure worldwide on blood pressure control

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Provenance: This is an invited Editorial commissioned by the Section Editor Xiaoyan Wang (Phd Student in Cardiology, Fudan University Shanghai Medical College, Shanghai, China).

Comment on: Li W, Gu H, Teo KK, *et al*. Hypertension prevalence, awareness, treatment, and control in 115 rural and urban communities involving 47000 people from China. J Hypertens 2016;34:39-46.

Submitted Oct 17, 2016. Accepted for publication Nov 24, 2016.

doi: 10.21037/jtd.2016.12.43

View this article at: http://dx.doi.org/10.21037/jtd.2016.12.43

There is a close relationship between high blood pressure (BP) levels and the risk of cardiovascular disease (CVD) and chronic kidney disease (1). The risk of these clinical outcomes is lowest at a BP of around 115/75 mmHg. In contrast, above 115/75 mmHg, for each increase of 20 mmHg in systolic blood pressure (SBP) or 10 mmHg in diastolic blood pressure (DBP), the risk of major coronary or cerebro-vascular events doubles (1,2). Most major guidelines define hypertension as SBP ≥140 mmHg or DBP ≥90 mmHg, based on the evidence from RCTs that in patients with these BP values treatment-induced reductions are beneficial (1,3). As hypertension is also a leading cause of disability and death worldwide (1 in 3 individuals has elevated BP in numerous countries), effective population-wide and individual-level interventions to lower BP have been attempted (4). For instance, in the context of the prevention and control of noncommunicable diseases (NCDs), the World Health Organization has adopted 9 global NCDs targets to be attained in 2025, including a 25% relative reduction in the prevalence of raised BP compared to 2010 levels (5). At the same time, the World Heart Federation has identified elevated BP (together with tobacco control and secondary CVD prevention) as an area of priority action to reduce worldwide CVD burden (6).

In the framework of the recent PURE-China Study, hypertension was reported to be quite common (41.9%) among a Chinese population of 45,108 individuals, aged between 35 and 70 years, from 115 different communities (45 urban, 70 rural), recruited from 2005 to 2009. Moreover, awareness, treatment, and control of hypertensions were poor in these communities (7). Awareness of having hypertension was found in only 41.6% hypertensive participants. In particular, treatment (traditional Chinese medications and/or Westerns drugs such as thiazide diuretics, hydralazine or reserpine) was received by a minority only of hypertensive individuals (34.4%) but less than one quarter of those actually receiving treatment was under control. Additionally, the control of the hypertension in the hypertensive individuals of the whole Chinese sub-cohort was less than 10%.

In a sensitivity analysis, the prevalence of hypertension was higher in rural than in urban communities (41.9% *vs*. 38.4%, P<0.001) and, despite treatment (rural: 26.8% *vs*. urban: 39.9%, P<0.0001), control of BP was worse in rural (4.4%) than in urban communities (10.8%, P<0.0001). In authors' opinion, the worst BP control in rural communities might be related to the fact that the primary care physicians are less well-informed on the new guidelines and are still linked to traditional prescription habits. Furthermore, the common BP-lowering drugs were not readily available in many rural communities and where available were not affordable (7).

However this situation is not present in China only, but concerns all the world.

In 2010, high BP was the leading risk factor for deaths due to CVD, chronic kidney disease and diabetes, causing more than 40% of worldwide deaths from these diseases (8,9). The 2013 guidelines on hypertension of the European Society of Hypertension (ESH) and the European Society of Cardiology (ESC) mentioned that

the prevalence of hypertension appeared to be around 30–45% of the general European population, with a steep increase by ageing. Although comparable data on the prevalence of hypertension and the temporal trends of BP values in different European countries are limited, differences in the average BP levels across countries, with no systematic trends towards BP changes in the past decade, were found (3).

The Centers for Disease Control and Prevention (CDC) analyzed data from the National Health and Nutrition Examination Survey (NHANES) on the prevalence, treatment, and control of hypertension among U.S. adults aged ≥18 years. During 2005–2008, 31% U.S. adults had hypertension, a prevalence not improved in the past decade. Of these adults, 70% were receiving pharmacologic treatment but less than half of those with hypertension had their condition controlled (10). Prevalence of treatment and control of hypertension are even lower among U.S. persons who do not have a usual source of medical care, those who are not receiving regular medical care, and those who do not have health insurance (10). A recent report on NHANES survey referred to 2011–2012, confirmed that the prevalence of hypertension was similar for men and women at nearly one-third and was highest among older adults (65%); it was also highest among non-Hispanic black adults (42%) (11). Hypertension is particularly common in black people. Hypertension occurs at a younger age and is often more severe in terms of BP levels in black individuals than in whites. A higher proportion of black people are sensitive to the BP (raising effects of dietary salt intake or higher prevalence of obesity than white patients), and this may be part of the explanation for why young black people tend to have earlier and more severe hypertension than young people from other ethnicity. Moreover, as a consequence, black patients with hypertension are at higher risk of strokes and hypertensive kidney disease, renal complications and end-stage kidney disease than whites (2).

Considering U.S. adults with hypertension (NHANES 2011–2012), awareness (~83%), treatment (~76%), and control (~52%) of hypertension were similar among non-Hispanic black, non-Hispanic white, and Hispanic adults. Non-Hispanic Asian adults had a lower prevalence of awareness (72.8%) than the other race and Hispanic origin groups, and lower treatment (65.2%) than non-Hispanic white and non-Hispanic black adults. However, hypertension control was similar among non-Hispanic Asian adults (46.0%) and the other race and Hispanic origin groups (11).

The treatment and control of hypertension are usually higher in Northern America than in Europe (12). Comparative analyses demonstrated that hypertension has been pursued more aggressively in Northern America than in Europe. Several epidemiological studies in European Countries showed that subjects with well-controlled BP represent a relatively small fraction of the overall hypertensive population, possibly due to inadequate treatment and/or non compliance (3,12,13).

During the same period of the recruitment of the PURE-China Study (between 2005 and 2010), 24,325 men and women (aged ≥35 years), living in a Southern-central area of Italy, were randomly enrolled in a prospective, population-based, cohort study: the Moli-sani Study (14).

Limiting the age range of this randomly-recruited population between 35 and 70 years (N: 20,582), the prevalence of hypertension was very impressive, as half had elevated BP or was under treatment (51.5%). The findings on prevalence, awareness (50.6%), treatment (45.4%), and control (31.4%) of hypertension in the hypertensive individuals from Moli-sani, were in line with those obtained by a nation-wide survey by the Italian National Health Institute (Oec/Hes 2008, Istituto Superiore di Sanità, ISS, Rome) (15).

A recent systematic review, including 135 population-based studies of 968,419 adults from 90 countries, showed that since 2000 to 2010, the age-standardized prevalence of hypertension decreased by 2.6% in high-income countries (HIC), but increased by 7.7% in low- and middle-income countries (LMIC) (16). Awareness and control of hypertension in LMIC are still low when compared with that in HIC. For instance, in 2010, hypertension control in HIC was 50.4% as compared with 26.3% in LMIC (16). A possible explanation for this disparity might be the lack of awareness of access and adherence to implementable hypertension guidelines in LMIC or because currently guidelines from LMIC were adopted from the existing HIC guidelines without due considerations about their implementability contextually to the relevant locally derived evidence (such as socioeconomic context or access to primary healthcare) (17).

BP is modifiable by nutrition and environment throughout the life-course; obesity, dietary sodium and potassium intakes, alcohol abuse, cigarette smoking, air pollution are all important risk factors for hypertension. Appropriate lifestyle changes are the pivotal points for the prevention of elevated BP. However, hypertension cannot be cured but it can be managed very effectively through lifestyle changes and, when needed, medication (1-3).

Several lifestyle interventions have been shown to reduce

BP. In general, for a hypertensive patient who needs a pharmacological treatment, lifestyle changes should be regarded as a complement to drug therapy rather than an alternative.

Weight loss in overweight or obese patients, dietary salt reduction, regular aerobic exercise, high consumption of vegetables and fruits and low-fat intake, regular and moderate alcohol consumption (up to 2 drinks/day for men, 1 drink/day for women), cigarette smoking cessation contribute not only a furthermost treatment of hypertension, but are beneficial in managing most of the other cardiovascular risk factors (3).

On the other hand, in some patients, in whom treatment is accompanied by an effective BP control for an extended period, the cited lifestyle changes may contribute to reduce both the number and the dosage of drugs. Reduction of medications should be made gradually and the patient should frequently be checked because of the risk of reappearance of hypertension (2,3).

For an epidemiological and clinical point of view, it is mandatory to constantly monitor how the prevalence of hypertension is worldwide changing, to identify new groups at risk, to verify the effectiveness of current health education especially for particular targeted population (LMIC versus HIC). Inadequate BP control is a global problem that concerns all the societies worldwide and cannot be exclusively ascribed to a lack of access to medical care, low adherence to Guidelines or poor compliance to therapy.

Today, the global scenario of hypertension highlights people's diffuse limited awareness and inappropriate management and the urgent need, in different regions, for an intensive programme of effective preventive strategies for the control of CVD (18).

Acknowledgements

None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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Cite this article as: Costanzo S, de Gaetano G, Iacoviello L. Put pressure worldwide on blood pressure control. J Thorac Dis 2016;8(12):E1610-E1613. doi: 10.21037/jtd.2016.12.43

