



On the occasion of world hypertension day 2014

Hamid Nasri¹, Mohammad-Reza Ardalan², Mahmood Rafeian-kopaei^{3*}

High blood pressure is currently defined as a blood pressure greater than 140/90 mmHg. Approximately 54% of stroke and 47% of ischemic heart disease events global were attributable to hypertension in the year 2001 (1). High blood pressure is the most common condition seen in primary care and leads to various disease including kidney failure, which if not detected early and treated appropriately, will lead to end-stage renal failure (1-3). On the other hand, high blood pressure remains one of the most important preventable contributors to disease and death. Many evidence from randomized controlled trials has detected benefit of antihypertensive drug treatment in reducing important health outcomes in patients with high blood pressure (1-6). World Hypertension Day, yearly celebrated on May 17th, to prepare an occasion to highlight opportunities to improve prevention and control of high blood pressure. The World Hypertension League introduced World Hypertension Day firstly in 2005. Each year, the World Hypertension League promotes high blood pressure awareness by a selected theme (1-3). In 2014, the World Hypertension Day will initiate the celebrations with them of 'Know your blood pressure'.

Essential hypertension is the most prevalent type of hypertension, affecting 90 to 95% of hypertensive individuals. Although no direct cause has recognized itself, however, there are various factors such as sedentary lifestyle, visceral obesity, potassium deficiency, stress, obesity, salt sensitivity, and vitamin D deficiency that increase the risk of developing hypertension (1-4). Risk also increases in elderly. Various inherited genetic mutations, and having a family history of high blood pressure, an elevation of renin, is another risk factor, and also, sympathetic nervous system over activity. Insulin resistance, which is a component metabolic syndrome, is also thought to influence the hypertension. Ingesting foods that contain high fructose corn syrup may increase the risk of developing hypertension (2-7). In general, it has been thought that renal incapability to excrete sodium,

■ Implication for health policy/practice/research/medical education

Diabetic kidney disease is a major risk of end-stage kidney failure and is associated with great morbidity and mortality, predominantly with accelerated cardiovascular disease. Various complex factors are related to the progression of diabetic kidney. The results of oral vitamin D therapy in type 2 diabetic patients are encouraging. However, more prospective interventional studies with larger duration and control of confounders are suggested.

ensuing in natriuretic factors like atrial natriuretic factor being secreted to promote salt excretion with the side effect of raising total peripheral resistance. Also, an overactive renin-angiotensin system (RAS) directs to vasoconstriction and retention of sodium and water. The resultant increase in blood volume leads to hypertension (4-9). Accordingly an overactive sympathetic nervous system, conducting to increased stress responses. Finally, it is also known that hypertension is highly heritable and polygenic. Recently much attention has been directed toward the link of essential hypertension and endothelial dysfunction, however it remains indistinguishable, whether endothelial dysfunction precedes the development of hypertension or whether such changes are mainly due to long-standing elevated blood pressure (2-9).

In fact, it has been postulated that oxidative stress is a key player in the pathogenesis of elevated blood pressure. A decrease in superoxide dismutase and glutathione peroxidase activity have been detected in newly diagnosed and untreated high blood pressure subjects which are inversely associated with level of blood pressure. Hydrogen peroxide production is also higher in hypertensive subjects (6-10). Likewise, hypertensive patients have higher lipid hydroperoxide production (4-10). Hence, if oxidative stress is really a cause of high blood pressure, thus, antioxidants should have favorable effect on high

Received: 15 January 2014, Accepted: 10 February 2014, ePublished: 1 March 2014

¹Department of Nephrology, Isfahan University of Medical Sciences, Isfahan, Iran. ²Chronic Kidney Disease Research Center, Tabriz University of Medical Sciences, Tabriz, Iran. ³Medical Plants Research Center, Shahrekord University of Medical Sciences, Sharhokord, Iran.

*Corresponding author: Prof. Mahmood Rafeian-kopaei, E-mail: rafeian@yahoo.com

blood pressure control and reduction of oxidative damage (10-12) should result in a reduction in blood pressure. Although dietary antioxidants may have beneficial effects on high blood pressure and cardiovascular risk factors. The antihypertensive effects of these plant extracts have been variously studied (1-5). The renewed attention to the new drugs from natural sources, especially from plant sources, has increased global attention during recent years. Indeed, herbs and natural plants are able to be our source of drugs, with fewer side effects (7-12) and better bioavailability for treatment of high blood pressure control in future. Thus in the treatment of hypertension, in addition to an adequate diet (such as the Mediterranean diet, which contains fish, tomatoes, garlic, olive oil, red pepper, and non-saturated oils), and also regular sports can be applicable as sole or in association with antihypertensive drugs. Likewise, there are also traditional herbal preparations, used in the alternative medicine, which may be used to treat obesity and other than blood pressure. It is well documented that, some of herbs possess antihypertensive efficacies which are being highlighted (4-9). Potential herbs which include: *Allium sativum*, *Solanum tuberosum*, *Tuberosum L.*, *Piper sarmentosum*, *Phyllanthus amarus*, *Andrographis paniculata*, *Ammi visnaga*, *Ginkgo biloba*, and *Lamiaceae* family, are known to possess antihypertensive properties. Various investigations have been conducted on these herbs and positive results have been obtained (8-12).

In conclusion, the present letter stresses on the need to ensure global awareness about the hypertension and using safe herbal drugs in combination with lifestyle modification and other antihypertensive drugs. However, our knowledge needs to be coupled with modern medicine and more scientific research needs to be conducted to verify the effectiveness, and clarify the safety profile of such herbal remedies for their antihypertensive potential.

Authors' contributions

All authors wrote the paper equally.

Ethical considerations

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

Conflict of interests

The authors declared no competing interests.

Funding/Support

None.

References

1. Mittal BV, Singh AK. Hypertension in the developing world: challenges and opportunities. *Am J Kidney Dis* 2010; 55(3): 590-8.
2. Shahbazian N, Shahbazian H, Mohammadjafari R, Mousavi M. Ambulatory monitoring of blood pressure and pregnancy outcome in pregnant women with white coat hypertension in the third trimester of pregnancy: A prospective cohort study. *J Nephroarmacol* 2013; 2(1): 5-9.
3. Hernandez GT, Nasri H. World Kidney Day 2014: increasing awareness of chronic kidney disease and aging. *J Ren Inj Prev* 2014; 3(1): 3-4.
4. Campbell NR, Petrella R, Kaczorowski J. Public education on hypertension: A new initiative to improve the prevention, treatment and control of hypertension in Canada. *Can J Cardiol* 2006; 22: 599-603.
5. Chockalingam A. World Hypertension Day and global awareness. *Can J Cardiol* 2008; 24(6): 441-4.
6. Chockalingam A, Campbell NR, Fodor JG. Worldwide epidemic of hypertension. *Can J Cardiol* 2006; 22(7): 553-5.
7. Rodrigo R, González J, Paoletto F. The role of oxidative stress in the pathophysiology of hypertension. *Hypertens Res* 2011; 34: 431-40.
8. Pickering JW, Endre ZH. The definition and detection of acute kidney injury. *J Ren Inj Prev* 2014; 3: 19-23.
9. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data. *Lancet* 2005; 365(9455): 217-23.
10. Zar CT, Das S. Potential effect of herbs on diabetic hypertension: alternative medicine treatment modalities. *Clin Ter* 2013; 164(6): 529-35.
11. Fugh-Berman A. Herbs and dietary supplements in the prevention and treatment of cardiovascular disease. *Prev Cardiol* 2000; 3: 24-32.
12. Nasri H, Shirzad H. Toxicity and safety of medicinal plants. *J HerbMed Pharmacol* 2013; 2(2): 21-2.

Please cite this paper as: Nasri H, Ardalan MR, Rafieian-Kopaei R. On the occasion of world hypertension day 2014. *J Parathyroid Dis* 2014; 2(1): 5-6.

Copyright © 2014 The Author(s); Published by Nickan Research Institute. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.