EDITORIAL

Blood Pressure and the Natural Diets: More to Learn

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Hypertension is a growing health problem worldwide. Despite being a major target of healthcare professionals, the impact of hypertension is expected to remain considerably high in the future. Kearney and colleagues did a worldwide analysis on hypertension which showed that 26.4% of adults (26.6% of men and 26.1% of women) were found to have hypertension in 2000. The group predicted that the total number of adults with hypertension will be 1.56 billion in 2025 (1). This should be a clarion call to all healthcare professionals to step up and take full responsibility from now to reduce the upcoming global burden on the healthcare system, as ignoring that fact may result in serious, catastrophic consequences.

The causes of blood pressure are multi-factorial. Some of the factors that increase the risk of developing high blood pressure are not controllable; these are known as non-modifiable risk factors such as race, age and family history. On the other hand, some factors which influence blood pressure (BP) are controllable and these are known as modifiable risk factors. Previous and current hypertension guidelines emphasize the value of lifestyle modification on blood pressure regulation. Manipulation of diet and doing regular exercise undoubtedly are vital in lifestyle modification techniques.

Generally, healthy diet means a group of well-balanced diets which contains all the essential nutrients that meet the energy demand of the body without exposure to toxicity or excessive weight gain from consuming an excessive amount. From the ancient times, people strongly believed in the importance of diet in preventing certain diseases. Many previous studies have shown the role of diet in lowering health risks of major non-communicable diseases such as obesity, heart disease, Type 2 diabetes, hypertension and cancer.

Multiple nutritional guides have been instituted by government and healthcare professionals to let people be aware of what they should be eating to maintain good health and to avoid certain diseases. Needless to say, hypertension is well deserved to get full attention because of its complications, and researchers have done a lot of studies which support the benefit of select nutrients in lowering blood pressure. Among the various lifestyle modification guides, Dietary Approaches to Stop Hypertension (DASH) is a well-recognized, balanced eating plan which limits sodium, sweets, sugary beverages and red meats and recommends diets which are low in saturated and trans fats and rich in potassium, calcium, magnesium, fibre and protein (2). There is much more to learn in detail about dietary intake in the DASH plan but the fundamental point of such guidelines is to recognize the strong relationship between consumption of some diets and human health. There are more ongoing studies researching the influence of diet on various kinds of health problems which will further promote the health of the general population in future.

Studies on the flavonoid content of food has demonstrated that increased consumption of fruits and vegetables reduced the risks of certain chronic diseases. The Nutrient Data Laboratory at the United States Department of Agriculture (USDA) established a flavonoid database in 2003. Harnly *et al* reported on analytical data which measured 20 different kinds of flavonoid constituents in fresh fruits, vegetables and nuts commonly available in US markets (3). Cocoa is a well-known diet that contains large amount of flavonoids.

In this issue of the Journal, Alleyne *et al* present findings on the short-term impact of cocoa consumption on blood pressure (4). The study was done in Trinidad and Tobago where hypertension is highly prevalent among persons of African descent. The authors highlighted previous studies which showed the benefits of regular consumption of a diet rich in flavonoids. Based on the previous studies, it has been established that regular consumption of flavonoids was associated with lower blood pressure in hypertension, lower incidence of ischaemic heart disease, stroke, neurodegenerative disorders and cancer and there was an inverse relationship with the mortality from coronary artery disease (5–9). Because of scarcity of data showing the immediate effect of flavonoid-containing foods on blood pressure, the investigators conducted a crossover experimental study focussing on ambulatory blood pressure changes within a few hours of taking a specific dose of flavonoid. The study included 45 participants, of which 25 were mildly hypertensive (systolic BP between 140 and 150 mmHg or diastolic BP between 90 and 100 mmHg or both) and 20 were normotensive at the time of experiment. The investigators then validated the flavonoid concentration in the cocoa powder products and cocoa-based formulas. After getting baseline

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BP readings, the investigators observed the blood pressure changes in the two groups of participants after serving 5 g of cocoa or placebo in both groups (4).

The short-term blood pressure changes to a single drink of designated dose of cocoa was found to be statistically significant (4). The authors of the study group observed maximum decreases in both systolic and diastolic pressure up to 20 mmHg. The decrease in BP between 10 and 20 mmHg was more obvious among the mildly hypertensive participants (p = 0.0001) and decrease of some magnitude was found in 71% of that particular group. The effect of a single cup of cocoa (5 g in 125 mL of water) occurred within an hour and that effect was sustained up to three hours after ingestion of cocoa. Mean decrease of systolic BP was 18 mmHg and mean decrease in diastolic BP was 14 mmHg (p = 0.0001). However, a lesser extent of decrease in diastolic BP was observed in the group that did not take regular anti-hypertensive medication. The BP changes after ingestion of cocoa was found to be small and not significant statistically in normotensive individuals, which agreed with previous studies.

Flavonoids can have a significant beneficial effect on blood pressue, and consumption of cocoa with a high flavonoid content in small quantities and at short intervals can cause a more sustained decrease in blood pressure.

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