



TEA: AS AN ANTI- HYPERTENSIVE DRUG, REDUCE THE CHANCES OF CVD

Subhashini Sharma*

Associate Professor Dept of Chemistry, Mmh College Ghaziabad U. P. India.

***Corresponding Author: Dr. Subhashini Sharma**

Associate Professor Dept of Chemistry, Mmh College Ghaziabad U. P. India

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ABSTRACT

Hypertension is the most dangerous factor linked to deaths caused by cardiovascular diseases. Many researchers have reported that tea has anti-hypertensive effects in animals and humans. Tea is the most popular drink in world. The aim of this review is to update the information on the anti-hypertensive effects of tea in human interventions and animal studies, and to summarize the underlying mechanisms, based on ex-vivo tissue and cell culture data. During recent years, an increasing number of human population have confirmed the beneficial effects of tea on hypertension. However, the optimal dose has not yet been established owing to differences in the extent of hypertension, and complicated social and genetic backgrounds of populations. Therefore, further large-scale investigations with longer terms of observation and tighter controls are needed to define optimal doses in subjects with varying degrees of hypertensive risk factors, and to determine differences in beneficial effects amongst diverse populations.

KEYWORDS: Tea secondary metabolites, hypertension, endothelial function, inflammation, CVD (cardiovascular diseases).

INTRODUCTION

High blood pressure, or hypertension, is diagnosed when an individual has a systolic blood pressure (SBP) of 130–139 mmHg or a diastolic blood pressure (DBP) of 80–89 mmHg (Stage 1) and a systolic blood pressure (SBP) of ≥ 140 mmHg and/or a diastolic blood pressure (DBP) of ≥ 90 mmHg (Stage 2).

A significant prevalence of high blood pressure among adults aged 25 years and older exists, with a worldwide incidence of 40%. Aging, dietary factors (for example alcohol consumption, excessive salt intake, and insufficient fruit and vegetable consumption), lifestyle factors (such as smoking and physical inactivity), and genetic predisposition have all been implicated in developing hypertension

It has been estimated that hypertension affects one billion people and causes 9.4 million deaths every year globally. 9 toll continues to increase as the incidence of hypertension rises sharply in low- and middle-income countries, where the social and economic costs associated with the disease are expected to place an especially heavy burden on socioeconomic development.

Cardiovascular diseases (CVDs) are a group of diseases of the heart and blood vessels that include coronary heart disease, cerebrovascular disease, peripheral arterial

disease, rheumatic heart disease, congenital heart disease and deep vein thrombosis. During recent years, CVDs have overtaken cancer as the leading cause of deaths worldwide. However, most CVDs can be prevented by modifying risk factors such as imbalanced diet, physical inactivity, diabetes, elevated lipids and high blood pressure. Of these risk factors, high blood pressure is most dangerous factor linked to CVDs death events. It is estimated that high blood pressure is a comorbid factor in 69% of people who have their first heart attack, and 75% of those with chronic heart failure. Clinical data shows that a 5 mmHg blood pressure reduction can reduce the risk of stroke and ischemic heart disease by 34 and 21%, respectively.

Tea is a beverage prepared by pouring hot or boiling water over the cured leaves or leaf buds of the tea plant *Camellia sinensis*. Based on the degree of fermentation, tea can also be classified into three major types: unfermented green tea, fermented black tea, and semi-fermented Oolong tea. Tea is the second most consumed beverage after water and is thought to have a variety of health benefits. It contains characteristic polyphenolic compounds known as catechins, namely (-)-epicatechin (EC), (-)-epigallocatechin (EGC), (-)-epicatechin gallate (ECG), (-)-epigallocatechin gallate (EGCG), (+)-catechin (C), and (+)-gallocatechin (GC), plus a small amount of (-)-catechin gallate (CG) and (-)-

galocatechin gallate (GCG). A number of studies have shown that consumption of both green and black teas is linked to reductions in the risk of CVDs and some forms of cancers, to improved oral health, weight gain control and cognition in the elderly, and to increased antibacterial and antiviral activity and bone density. These health benefits are often attributed to tea being rich in a class of polyphenolic compounds called flavonoids. Diet plays an important role in the treatment and control of high blood pressure. A survey showed that flavonoids can play an important role in the treatment and control of high blood pressure. Anti-hypertension effects of drinking tea have become a hot topic for molecular nutrition and food research. In order to better understand the research achievements in this field, we summarized the role of tea in lowering blood pressure in clinical studies, as well as animal and cell experiments. The molecular mechanisms of tea hypotension effects were updated in this review.

Tea: As a regulating blood pressure agent

there is a long history of people drinking tea, made by collecting leaves from old tea plants to treat high blood pressure. Both in East Asian and western countries, lowering blood pressure by drinking tea has been reported in human population studies. Due to differences (genetic backgrounds, body composition, dietary habits, and amount and type of tea consumed) between different populations, the results of tea consumption in lowering blood pressure may not be consistent. However, during recent years, with improvements in experimental design and statistic software, great advances have been made in understanding the effect of tea consumption on blood pressure. Khalesi et al. systematically reviewed randomized controlled trials that examined the effect of green tea.

Moreover, data from laboratory studies have shown that tea and its secondary metabolites have important roles in relaxing smooth muscle contraction, enhancing endothelial nitric oxide synthase activity, reducing vascular inflammation, inhibiting rennin activity, and anti-vascular oxidative stress. However, the exact molecular mechanisms of these activities remain to be elucidated.

Long term effects of tea drinkers:

In the study, which appears in the July 26 issue of *The Archives of Internal Medicine*, researchers looked at the effect of tea drinking over the past decades on the risk of developing high blood pressure in 1,507 Chinese men and women living in Taiwan who had no previous history of high blood pressure.

Because the size of the teacup used varies widely in Chinese culture, the participants were asked to provide details about what kind of cup was used, how the tea was prepared, the amount drunk, and the frequency per week in order to calculate the average tea consumption per day.

B say there has been growing interest in exploring the role of antioxidant compounds called flavonoids found in tea that may protect against heart disease.

But researchers say few studies have examined the long-term effects of tea drinking on the risk of hypertension, and the results so far have been conflicting. They say this study is the first on the issue to use a large number of people and detailed information about tea consumption and other lifestyle and dietary factors associated with hypertension risk.

The tea drinkers tended to be younger, mostly men, and had higher educational and socioeconomic status than non-tea drinkers. But they also were more obese, smoked more, drank more alcohol, ate fewer vegetables, and had a higher sodium intake than those who didn't drink tea regularly.

After taking these and other factors associated with heart disease and high blood pressure risk into account, researchers found tea drinkers were much less likely to develop high blood pressure than non-tea drinkers.

Other ways to reduce hypertension:

In recent years, researchers say there has been growing interest in exploring the role of antioxidant compounds called flavonoids found in tea that may protect against heart disease.

Here are 10 lifestyle changes you can make to lower your blood pressure and keep it down.

Drinking more than 4 cups of coffee a day may increase your blood pressure.

If you're a big fan of coffee, tea or other caffeine-rich drinks, such as cola and some energy drinks, consider cutting down.

It's fine to drink tea and coffee as part of a balanced diet, but it's important that these drinks are not your main or only source of fluid.

- Lose extra pounds and watch your waistline. ...
- Exercise regularly. ...
- Eat a healthy diet. ...
- Reduce sodium in your diet. ...
- Limit the amount of alcohol you drink. ...
- Quit smoking. ...
- Cut back on caffeine. ...
- Reduce your stress
- Quit alcohol
- Eat balanced diet

Add ginger and garlic to your diet. Ginger is a superfood, loaded with nutrients. It improves blood circulation, controls blood pressure and relaxes the muscles. You can add ginger to your tea, soups, curries and other drinks. High blood pressure can often be prevented or reduced by

eating healthily, maintaining a healthy weight, taking regular exercise, drinking alcohol in moderation and not smoking.

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