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REPORT

Uncontrolled High Blood Pressure: A Little-Known Failure of Conventional Medicine

By Heather S. Oliff, PhD



Sadly, millions of Americans who think their blood pressure is under control are wrong! Shocking evidence reveals that most people treated with antihypertensive drugs still have higher-than-optimal blood pressure.^{1,2} As a result, they remain at a heightened risk of suffering stroke, heart attack, and kidney failure.

Because hypertension (high blood pressure) is a multifactorial problem,³ effective management is rarely achieved by taking one drug. In fact, optimal management often requires a broad-based approach that includes both pharmaceuticals and nutritional components, along with regular self-monitoring of blood pressure. Compelling evidence indicates that many conditions that lead to and sustain high blood pressure can be corrected through an integrative approach emphasizing lifestyle modification, pharmaceutical agents, and nutritional support.⁴⁻¹⁸

PERILS OF INADEQUATE BLOOD PRESSURE CONTROL

Clinical studies now show that an alarming number of adults under medical care for hypertension are unable to achieve optimal blood pressure control.

According to physicians at the Baylor College of Medicine, only 27% of Americans with hypertension have their blood pressure effectively controlled to levels below 140/90 mmHg.¹ Elderly women are at the greatest risk. A study published last year in the *Journal of the American Medical Association* found that in an astonishing 77% of women over the age of 80, hypertension was not sufficiently controlled by the treatment plans designed by their doctors.¹⁹ Since optimal blood pressure is now considered to be less than 120/80 mm Hg,²⁰ the number of Americans whose blood pressure is controlled to optimal levels is far lower than these disturbing official statistics suggest.^{1,19}



Inadequately controlled blood pressure exerts a tremendous health burden, invariably contributing to stroke, heart attacks, and kidney disease.² There are likely numerous contributors to this epidemic of uncontrolled blood pressure. An alarming study from 2002 revealed that many doctors do not recommend treatment to their patients unless blood pressure values exceed 160/90 mmHg . . . a level proven to increase disease risk!¹

Another possible contributor to inadequate blood pressure control is that physicians are reluctant to treat older patients aggressively, even though elderly patients are at greatest risk of suffering from hypertension. Clinicians' reluctance to implement comprehensive treatment plans in their older patients may stem from a perception of lower benefits or greater risk of side effects in this population.²¹

Furthermore, blood pressure is controlled by a complex interplay of factors that include diet, genetics, response to stress, medications, and other underlying health conditions.³ Thus, enlightened health care practitioners and their patients are discovering that inadequately controlled blood pressure requires a multifactorial strategy. An optimal strategy employs a combination of nutritional and pharmaceutical options to offer a comprehensive approach for normalizing blood pressure.

Hypertension and Endothelial Dysfunction: A Deadly, Dual Threat to Vascular Health

Blood vessel contraction (vasoconstriction) and dilation (vasodilation) are controlled by numerous interacting physiological pathways that utilize biochemical messengers such as peptides, hormones, and enzymes. These pathways are the targets of many pharmaceutical drugs used to treat hypertension. Stress, nutritional factors, drugs, and various disease processes can also influence blood pressure levels through their effects on biochemical messengers that affect blood vessel tone.²²

The endothelial cells lining the inside walls of blood vessels play a crucial role in regulating blood flow and blood pressure by releasing factors that contribute to the contraction and relaxation of vascular smooth muscle. In healthy people, there is a balance between the release of factors that contract the blood vessel lining and those that relax it, thus resulting in healthy blood flow. This balance, however, can be altered by conditions such as hypertension, which contributes to the progression of vascular disease.²³

Moreover, hypertension goes hand in hand with a lethal condition called endothelial dysfunction. This occurs when the endothelial cells lining the blood vessels are unable to respond to demands for increased blood flow by dilating. Endothelial dysfunction is a key factor in the development of atherosclerosis. Thus, strategies to improve endothelial dysfunction may be crucial for decreasing the risk of heart attack, stroke, and cardiovascular death associated with high blood pressure.²³ Similarly, regularly monitoring blood pressure and maintaining healthy blood pressure levels are absolutely essential to ensuring endothelial health.

LIMITS TO STANDARD TREATMENT FOR HYPERTENSION

Standard treatment for hypertension includes lifestyle modifications such as avoiding dietary salt intake and losing weight, as well as the use of various prescription drugs such as diuretics, beta-blockers, calcium channel blockers, angiotensin-converting enzyme inhibitors, and angiotensin II receptor antagonist drugs.³ One of the most widely used classes of antihypertensive drugs are those that interfere with the actions of the angiotensin converting enzyme (ACE). Drugs that inhibit or block the actions of angiotensin converting enzyme (such as ACE inhibitors) work by decreasing the activity of a potent vasoconstrictor, thus helping to maintain healthy blood flow and optimal blood pressure.²⁰

Despite implementing lifestyle changes and taking one or more prescription drugs to manage high blood pressure, many adults have inadequately controlled hypertension.^{1,19} Clearly, better tools are needed to manage the dangers of inadequately controlled hypertension. New findings suggest that natural agents may help to fill the void left by conventional hypertension medicines.

According to Dr. Raymond Townsend of the University of Pennsylvania, a leading hypertension researcher, a natural agent derived from milk protein known as the C12 peptide can be safely combined with prescription medications that are used to treat high blood pressure and other cardiovascular risk factors such as high cholesterol. When asked in a recent interview whether the C12 peptide can be used concomitantly with prescription medications, Dr. Townsend responded, "As far as we know, the answer is yes. No drug interactions are known, but it is still early in the scientific development of the C12 peptide, so it is recommended that persons taking other medications should consult with their physician first."²⁴ The C12 peptide can help aging adults integrate nutritional agents with other conventional medical options to best support and maintain healthy blood pressure levels.

NOVEL CASEIN PEPTIDE: A NATURAL ACE INHIBITOR

While searching for a natural agent to help optimize blood pressure, researchers hydrolyzed (or split) the milk protein known as casein, and isolated the C12 peptide. Clinical studies have since shown that the C12 peptide is a natural ACE inhibitor with specific blood pressure-lowering effects.⁵

A small study conducted in the United States demonstrated the C12 peptide's effectiveness in helping to normalize high blood pressure. This randomized, double-blind, placebo-controlled crossover study examined 10 men and women who averaged 50 years of age, had an average blood pressure of 152/98 mmHg, and were not taking antihypertensive medications. Each subject took a placebo for six days and then a single dose of either 200 mg or 400 mg of C12 peptide. Blood pressure was monitored via a small blood pressure unit that each subject wore throughout the day. In the 200-mg and 400-mg treatment groups, systolic pressure declined significantly, by an average of 2.4 mmHg and 4.5 mmHg, respectively, while diastolic pressure dropped by an average of 4.4 mmHg and 6.5 mmHg, respectively.⁶ The study results demonstrate that the C12 peptide has a notable impact on blood pressure after only a single dose.



A Japanese study sought to evaluate the longer-term benefits of supplementing with the C12 peptide. Eighteen mildly hypertensive subjects, with a mean blood pressure of 141/99 mmHg, received 200 mg of the C12 peptide daily for four weeks. The researchers recorded significant reductions of 4.6 mmHg in systolic blood pressure and 6.6 mmHg in diastolic blood pressure. Blood pressure declined gradually over the four-week study period, indicative of a healthy decline, as opposed to a dramatic drop that could cause dizziness or fainting. When treatment was halted, the subjects' blood pressure began to return to the baseline levels recorded prior to treatment. The researchers also observed that the C12 peptide appears to have long-lasting effects: even two weeks after treatment ended, diastolic blood pressure levels were still significantly lower than baseline levels.⁷ No unfavorable side effects were reported.

Because of these positive clinical findings, the Japanese Ministry of Health and Welfare has approved a health-enhancing beverage containing the C12 peptide for sale throughout Japan.⁸ (The C12 peptide is not recommended for people who are

allergic to dairy products, and like other ACE inhibitors, the C12 peptide should not be taken by women during pregnancy.)

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GRAPE SEED EXTRACT OPTIMIZES BLOOD PRESSURE, ENHANCES ENDOTHELIAL FUNCTION, AND DECREASES OXIDATIVE STRESS

The C12 peptide is not the only natural agent that effectively supports healthy blood pressure levels. Grape seed extract, which is already known to confer a wealth of health benefits, contains high concentrations of polyphenols, potent antioxidants that naturally increase blood vessel dilation. This dilation naturally increases blood flow while decreasing blood pressure.⁹

A recent study sought to ascertain the effects of administering grape seed extract to prehypertensive subjects. Twenty-four patients with a mean blood pressure of 130/79 mmHg were treated for four weeks with either placebo or 150 mg or 300 mg of a standardized, polyphenol-rich grape seed extract. Both doses of grape seed extract significantly reduced the subjects' blood pressure compared to baseline levels. The researchers thus concluded that grape seed extract may be beneficial in lowering the blood pressure of people who are prehypertensive.⁹

In addition to benefiting individuals with prehypertension, grape seed extract may help to improve impaired endothelial function, an initiating factor in heart disease. In an important laboratory study, grape seed extract helped to inhibit the synthesis of a protein associated with endothelial dysfunction and mortality, while also promoting the dilation of blood vessels.¹⁰ These findings led the researchers to propose that grape seed extract may be a critical nutrient for restoring impaired endothelial function and thus protecting against cardiovascular disease, America's number-one killer.

Lifestyle Management for High Blood Pressure and Prehypertension

It is important to understand what is considered ideal medical treatment of hypertension so that you and your physician can make the best decision for your health.

Men and women with prehypertension should have a goal of lowering their blood pressure to less than 120/80 mmHg, unless they have chronic kidney disease or diabetes, in which case the goal should be less than 130/80 mmHg.²⁰ Prehypertension (120-139/80-89 mmHg) can be treated with lifestyle modifications, unless the individual has chronic kidney disease or diabetes, in which case antihypertensive (blood pressure-lowering) drugs are often recommended.²⁰



For individuals with hypertension or prehypertension, blood pressure can be lowered by losing weight and increasing physical activity (especially aerobic activity for at least 30 minutes every day). Several major dietary modifications can be helpful:

1. Initiate the DASH (Dietary Approaches to Stop Hypertension) eating plan, which increases dietary potassium, fiber, and calcium intake through a diet rich in fruits, vegetables, low-fat dairy products, whole grains, and foods with reduced saturated and total fat content.²⁰ This dietary plan is also rich in magnesium, a crucial mineral that may help promote optimal blood pressure levels.²⁷
2. Limit alcohol consumption to no more than two drinks a day for most men and no more than one drink a day for women.²⁰
3. Reduce salt intake to no more than 2.4 grams of sodium or 6 grams of sodium chloride each day.²⁰

Exciting research findings suggest that, in addition to its positive effects on blood pressure and endothelial function, grape seed extract may protect against another known contributor to cardiovascular disease: the oxidation of low-density lipoprotein (LDL). Elevated levels of blood lipids that occur following meals are a known risk factor for heart disease, in part due to their increased susceptibility to oxidative changes. When adult volunteers consumed a grape seed extract in combination with a meal, they demonstrated lower levels of post-meal oxidative stress, and the LDL particles in their blood were more resistant to the dangers of oxidative modification. This led the researchers to conclude that grape seed extract may further reduce cardiovascular risk by protecting LDL particles from oxidative stress.¹¹

Grape seed extract is considered safe and well tolerated. A formal toxicity assessment that evaluated the impact of chronic high

doses of grape seed extract in rats found no adverse treatment-related changes.¹²

POMEGRANATE EXTRACT: NATURAL BLOOD PRESSURE SUPPORT WITH POTENT ANTIOXIDANT PROPERTIES

Pomegranate is fast becoming known as one of the healthiest foods on earth, largely due to its beneficial effects on cardiovascular health.¹³ While many people drink pomegranate juice, pomegranate extracts may hold even greater benefits.

The benefit of supplementing with a pomegranate extract rather than drinking the juice or eating the fruit is that the extract, unlike the juice, contains virtually no sugar or calories, and requires no refrigeration to maintain optimal quality. Interestingly, commercial pomegranate juice and whole fruit extracts contain beneficial phytonutrients that are not obtained from eating the pomegranate fruit itself.¹⁷ In particular, punicalagins, the primary antioxidant found in pomegranate, are concentrated in the husk and in the juice of the whole fruit.¹⁷ While some pomegranate products are standardized to contain high levels of ellagic acid—an antioxidant and phytonutrient with anti-cancer potential—focusing on ellagic acid alone is unlikely to provide for optimal synergy among the phytonutrients found within the pomegranate.¹⁸ Emerging research suggests that products standardized in punicalagins confer the greatest benefit by providing the highest levels of pomegranate antioxidants.



Scientists are now studying pomegranate extracts to uncover the many benefits they may have for human health. Pomegranate contains an array of beneficial phytonutrients such as phenolic compounds and tannins, including punicalagins, which are unique to pomegranate. Several compounds in pomegranate are potent antioxidants and ACE inhibitors.¹³ Researchers have determined that oxidative stress can disrupt the balance of vasoconstricting and vasodilating biochemicals in the endothelium, contributing to high blood pressure and endothelial dysfunction. By quenching oxidative stress, antioxidants may help prevent vasoconstriction, lower blood pressure, and promote healthy endothelial function.¹⁴ Scientists believe that pomegranate, a potent source of antioxidants, may promote healthy blood pressure levels by enhancing the activity and preventing the degradation of an important

vasodilating agent. These benefits may also lead to improvements in endothelial function.¹⁵ Additionally, scientists have reported that regular pomegranate consumption helps to protect serum LDL against oxidation, conferring additional cardiovascular protection.¹⁶

Changing Definitions of Optimal Blood Pressure

Simply stated, blood pressure is a measurement of the force in the arteries. Systolic pressure is the force in the arteries when the heart beats, while diastolic pressure is the measurement when the heart is at rest and refilling. Measured in millimeters of mercury (mmHg), blood pressure is recorded as the systolic pressure (top or first number) over the diastolic pressure (bottom or second number).

In May 2003, the Joint National Committee of the US Department of Health and Human Services published its “Seventh Report on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure,” which changed the classification of blood pressure.

Prior to the new classification, blood pressure of 120-129/80-84 mmHg was considered normal, while 130-139/85-89 mmHg was considered high-normal.²⁰ The report added a new category designated as prehypertension. Today, blood pressure of less than 120/80 mmHg is considered optimal and blood pressure of 120-139/80-89 mmHg is considered prehypertensive.²⁰ A large surveillance study reported a stepwise increase in cardiovascular disease risk with an increase in blood pressure category, and noted that blood pressure of less than 120/80 mmHg is ideal for reducing the risk of cardiovascular events.²⁵

In 2006, researchers found that blood pressure levels of 120-129/80-84 mmHg were associated with a 181% higher risk of cardiovascular disease—including coronary heart disease, ischemic stroke, cardiac procedure, or silent myocardial infarction—compared to optimal blood pressure levels of less than 120/80 mmHg. Higher blood pressure levels of 130-139/85-89 mmHg were associated with a frightening 233% greater risk of cardiovascular disease compared to optimal levels. Prehypertension poses even greater cardiovascular risk among blacks, diabetics, and people with a high body mass index.²⁶

The lethal consequences of hypertension underscore the critical importance of maintaining normal blood pressure in healthy adults and lowering blood pressure in people with hypertension or prehypertension.

LET FOOD BE THY MEDICINE

In the fifth century BC, Hippocrates, considered by many to be the father of science-based Western medicine, proclaimed, “Let food be thy medicine and let medicine be thy food.” This remarkable insight still resonates today.

Scientific studies have demonstrated that the three food products just described—milk-derived C12 peptide, grape seed extract, and pomegranate extract—can help support normal blood pressure in aging adults safely and effectively. This combination of nutrients, in addition to other lifestyle changes such as weight loss and exercise, may help people with prehypertension to avert the onset of full-blown high blood pressure.

Along with lifestyle modifications, this triad of nutrients offers complementary support for people who cannot adequately normalize their blood pressure using pharmaceutical therapy alone, thus enabling them to safely restore their blood pressure values to healthy ranges.

By taking advantage of an integrative approach using the best of conventional and alternative medicine, you can safeguard your cardiovascular system against the silent damage incurred by hypertension.

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