Chiropractic, Nutrition, and Hypertension: A Proposed Hypothesis

By Wade Browne and Joseph Goodman

The chiropractic philosophy of health care advocates the natural means of proper spinal kinesthetics and nutritional intake. On a daily basis people across all socioeconomic strata utilize chiropractic care. The most common type of patient seen in a chiropractic office has musculoskeletal conditions, such as, low-back pain, neck pain, and headaches.

These same patients have other pathophysiological conditions, such as hypertension (HTN). Although diseases like HTN are usually considered a medical problem, there is a growing population seeking alternative care for this same or other conditions. Even though the chiropractic profession prefers not to be associated with "alternative medicine," the general population recognizes chiropractic. However, for the chiropractor this is not altogether negative. The term "alternative medicine" is a rapidly growing terminology and is quickly gaining popularity. Due to the ever-growing acceptance of the alternative paradigm, people are beginning to utilize chiropractic care as a primary approach to cover more of their health care needs.\textsuperscript{1-4} This phenomenon creates additional pressures on the progressive doctor of chiropractic to become cognizant in treatment regimes for conditions that are not usually considered to be in the mainstream of the traditional chiropractic practice.

The literature demonstrates that chiropractic providers may be able to further help manage their hypertensive patients by utilizing combined vitamin B6 and niacin supplementation.

The definition of "hypertensive" varies between different sources. For a patient to be diagnosed with hypertension, blood pressure readings must be taken two or more times for two or more office visits. An average BP that measures more than 140-210 mm Hg systolic over 90-120 mm Hg diastolic is called hypertension. HTN as been ranked as the fourth leading mortality risk factor in the world. There are many pathophysiological complications of HTN, such as arteriosclerosis, stroke, congestive heart failure, myocardial infarction, end-stage renal disease, and death.\textsuperscript{5-10}

Patients treated pharmacologically for hypertension often have blood pressure values that are only slightly lower than in the nontreated groups. This finding is demonstrating that the current hypertension management programs are inadequately lowering elevated blood pressures to nonthreatening levels.\textsuperscript{5} This
implies that the nutritional model along with chiropractic care may be just as effective as the traditional medical model of treatment.

Many pathophysiological processes, such as arteriosclerosis and coronary artery disease (CAD), are interrelated to elevated BP. For instance, in the role dyslipidemia plays in arteriosclerosis and CAD in association with HTN, one author writes: "consideration must be given to the lipoprotein abnormality, the severity, the spectrum of action of the treatment products, and the effects beyond the expected action on lipoproteins."\textsuperscript{11}

This consideration is so great that another author writes: "therapeutic doses of niacin should not be used without medical supervision. ... Physicians should stress the use of nonpharmacological means to reduce BP and discuss intervention that could reduce excessive stress."\textsuperscript{12}

Niacin’s effect is multifaceted and reflects the strength of dosage, form of product and tissue targeted. With respect to BP either L-tryptophan or niacin reduced elevated BP. Niacin prevented development of elevated BP and reduces slightly cardiac hypertrophy and (with consideration of the lipidemic effect) shows a favorable effect on arterial wall stiffness.\textsuperscript{13-14} However, patients treated with pharmacologics, even with normal BP, demonstrated marked endothelial dysfunction that is not attenuated by pharmacotherapeutics for dyslipidemia.\textsuperscript{15}

Niacin’s modus operandi is to stimulate the production of prostaglandin (PG)D\textsubscript{2} from the skin. The PGD\textsubscript{2} then mediates vasodilation.\textsuperscript{16-17} Niacin also helps convert LDL cholesterol to HDL cholesterol, plus other lipidemic effects that indicate long-term usage that further helps the short-term vasodilation for decreasing BP.\textsuperscript{18} However, there are risks associated with any usage of oral supplementation. There has been one reported case of exacerbation of a peripheral neuropathy by the use of niacin.\textsuperscript{19} Niacin may also be contraindicated in active episodes of asthma due to the brochoconstrictive effects of PGD\textsubscript{2}.

In addition to niacin supplementation, pyridoxine (B\textsubscript{6}) has promising physiological effects. One theory for the etiology of hypertension is the body’s retention of fluid in the vascular system. The diuretic properties of B\textsubscript{6} reduce fluid volume in the vascular system, thus producing a mechanism for lowered blood pressure. By using a single dose of 5mg/kg body weight/day for four weeks, B\textsubscript{6} was found to significantly reduce both systolic and diastolic BP of hypertensive patients. However, the authors believe that this level of supplementation could cause deleterious effects due to B\textsubscript{6} toxicity. Another study suggested that the intake of B\textsubscript{6} and folate above the recommended daily allowances may be important in the prevention of coronary
heart disease in women. Also, individuals maintaining high blood levels of B6 were 70 percent less likely to develop heart disease.\textsuperscript{20-22}

Increased levels of stress also play a role in elevated blood pressures. It has been well established in the literature that B6 has been used as a catalyst to help manage and lower physiological stress levels in the body. Lower stress levels help reduce hypertension.

The literature appears to show that niacin and B6 are complementary in action in respect to HTN. We propose the hypothesis that the pharmacokinetics of niacin causes a vasodilation, producing a slight reduction in BP. The lowering of the BP reduces the capillary infusion of interstitial fluid from the interstitial space into the capillary via Bernoulli’s principles and the venturi effect. The diuretic properties of B6 allow the kidneys to further allow more fluid to pass out of the body, thus reducing further the blood volume. This causes a hyperconcentration of the blood, causing an osmotic effect to pull the extracellular fluid from the interstitial space into the capillary. Thus, homeostasis is achieved.

The combination of both supplements appears to be the safest and most beneficial. Limited clinical trials of niacin (100mg) and B6 (50mg) combination therapy three to four times per day is effective in reducing BP in most cases of HTN. It is noted that the best response is associated with a niacin flush reaction. Some patients with an overexuberant flush necessitate a decrease of niacin dosage initially. The niacin flush may be inhibited by intake of aspirin or diets high in salicylates.

Over the years health care providers have sought the one most significant etiology of HTN. One recent study demonstrated that surgical decompression of the medulla oblongata "showed a direct causal relationship between HTN and neurovascular compression of the ventrolateral medulla" when seven out of eight trial patients with intractable HTN responded with a 10 to 30 percent decrease in BP.\textsuperscript{23} This finding may suggest that for those patients that exhibit HTH or other signs of neurovascular compression associated with the brain stem be examined for subluxation of the upper cervical motion segments. If the exam reveals the presence of subluxation of the upper cervical complex, then reduction of the subluxation via chiropractic manipulative therapeutics should prove beneficial to many patients with HTN.

In summary, the use of these vitamin supplements may be a viable mechanism to be used in synergy with chiropractic manipulation to help reduce hypertensive blood pressures. The use of B3 and B6 as physiological change agents fall within the paradigm of using natural elements to help maintain the body’s normal homeostasis. This ideology falls within the philosophy of chiropractic to utilize natural methods to
accomplish optimum health. The authors are not recommending substituting this type of treatment in place of the traditional medical treatment for hypertension. However, we are encouraging the chiropractic physician to utilize vitamins B3 and B6 along with chiropractic care and the traditional medical treatment for their hypertensive patients. The benefits of this combined approach will be far superior to the physiological outcomes of using only the traditional treatment for hypertension.

References


Wade Brown, BSN, RN, DC
Joseph Goodman, DC
Assistant Professors
Parker College of Chiropractic

Page printed from: