

Novel Methods And Life Style Modification Remedies For Hypertension Reduction-Overview

Dr.T.RavikumarM.D(Gen med)¹, Dr.P.SaravananM.D^{(Gen med)2},
Dr.Chethan Bharadwaj. A^{(M.D) Gen med3}

¹Professor Of Medicine, Govt. Mohan Kumaramangalam Medical College And Hospital Salem Tamil Nadu

²Assistant Professor Of Medicine, Govt.Rajaji Medical College And Hospital Madurai Tamil Nadu

³Postgraduate In Medicine Govt. Mohan Kumaramangalam Medical College And Hospital Salem Tamil Nadu

Abstract

Background: Life style modification for hypertension is easily said than done. Once the diagnosis of a hypertension is made everybody wants to avoid lifelong medications as well as diet control.

Aim: To analyze some famous nonpharmacological hypertensive remedies and record the benefits in controlling hypertension

Setting And Design: Known 50 hypertensive patients with mean age of 40 ± 5 were taken for study. They were subjected to various simple procedures which are known to have an effect on hypertension.

Materials And Methods: All the patients were on regular antihypertensive therapy. After getting informed consent patients were randomly allotted some simple procedures; blood pressure was recorded before and after the procedures

Result: Many procedures are simple and easy to follow. Some of them increases blood pressure and many decrease blood pressure of 10 – 20mm Hg to a time ranging from 10 -30 minutes. These methods are adjuvant to the drugs and not a substitute for the drugs.

Conclusion: These procedures gave the people a sense of wellbeing and a reduction in the measurement of their blood pressure which lasted for a few minutes only and they seldom benefit the patients to reduce the pill burden.

Keywords: Hypertension, yoga, meditation ,laughter therapy ,aerobics, walking, diet, green tea, magnetic belts

I. Introduction

Modern society is suffering from stress. Speedy lifestyles, water, noise and air pollution, active and passive smoking, high fat and trans-fat containing junk and fast foods, overcrowding, dieting, work pressure and daily demands rob us of vital nutrients and have an impact on various physiological aspects of the body.

Whenever a person suffers from diseases like hypertension diabetes or obesity the one magic treatment of LSC (Life style change) is advised by every physician. But how far are they useful in various diseases are less analysed on a day to day clinical practice because of the compliance issues as a sudden change in the diet and extra emphasis on lifestyle modifications such as regular exercise are less appreciated by many of the patients and they tend to discontinue it. Patients even fall pray for false hopes of medication less control of hypertension by some of the claimed methods by alternative sciences.

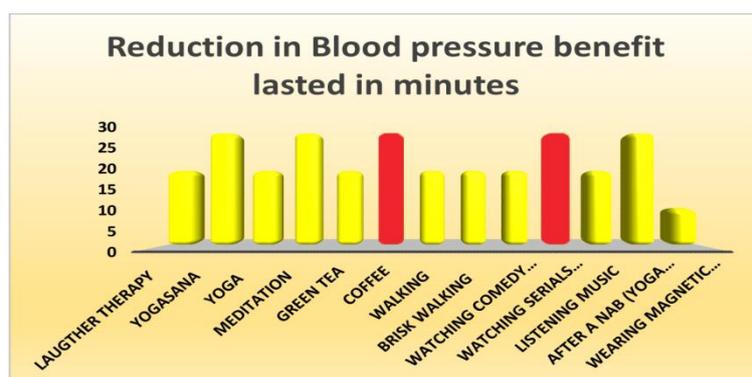
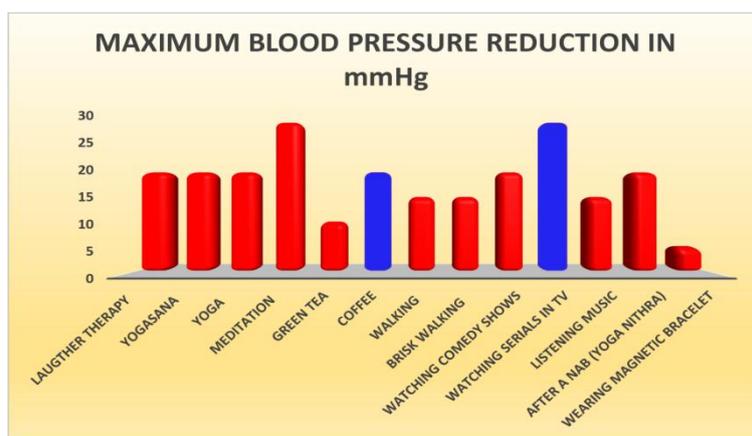
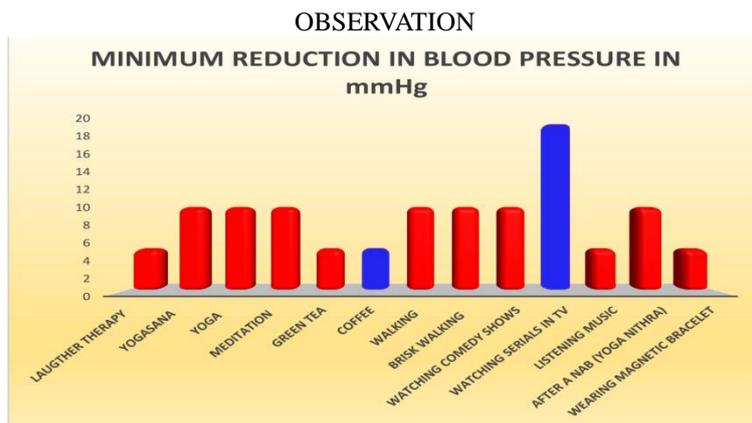
In our study we selected known hypertensive patients who were already on medications and analysed the impact of various novel methods on hypertension.

II. Materials And Methods And Selection Criteria

All the patients between 35 – 55 years of age who were on regular anti-hypertensives, after getting informed consent were subjected to various therapies and the results obtained are as below:

The methods were selected by random process and the diurnal variation was eliminated as blood pressure was recorded before and after the procedures and not during the procedure

The various procedures were selected and done for a time frame of 15 – 20 minutes the blood pressure recording done after 10, 20, 30 and 40 minutes



Graphical representation showing range of variation in blood pressure with various non pharmacological measures.

Drinking coffee and watching serials increased the blood pressure whereas all other measures decreased blood pressure.

Graphical representation of duration of the effect of various non pharmacological measures on blood pressures.

The maximum duration for any method did not last beyond 30 minutes. Though drinking coffee and watching serials increased the blood pressure, the effect didn't last long either.

III. Literature Survey

Caffeine and blood pressure

As explained by Dr. Sheldon GSheps in Mayo clinic publications, it is possible that caffeine can cause a short, but dramatic increase in blood pressures, even if the person is not hypertensive. The amount of caffeine

in two to three cups of coffee can raise systolic pressure by 3 to 14 millimeters of mercury. It's unclear what causes this spike in blood pressure and is believed to be due to excessive adrenaline surge.

Drinking Tea Lower Blood Pressure

In the study published in *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. The study showed that about 40% of the participants were habitual tea drinkers and had been drinking green or oolong tea. The study concluded that habitual green or oolong tea consumption for more than a year significantly reduced the risk of hypertension in Chinese population.

Nutrition & Blood Pressure

Hypertensives can remarkably reduce their blood pressure through nutritional changes. Increasing the amount of vegetables and fruit and reducing the of fat and cholesterol will not only reduce blood pressure but can help with weight loss, which also lowers blood pressure.

Low sodium-high potassium diet is an essential dietary component for effective control of blood pressure. Replacing common sodium salt by low sodium and high potassium salt offers a valuable non pharmacological approach to lowering BP in older people with mild to moderate hypertension. *JM Geleijnse, JCM Wittemann BMJ 1994;309:436*

How Sodium & Potassium Levels Affect Blood Pressure:

1. Sodium and Blood Pressure

According to the National Institutes of Health, there have been several studies that show that reducing the intake of sodium can lead to lower blood pressure levels. Given this the National Heart, Lung and Blood Institute and the American Heart Association recommend that adults get no more than 2,400 mg of sodium a day. Salt retains water which increases the extracellular fluid volume which in turn leads to higher blood pressure. One study published in the *New England Journal of Medicine* showed that decreasing salt intake alone allowed some patients with high blood pressure to be able to discontinue taking medication.

2. Potassium and Blood Pressure

A study published in the April 2005 issue of "Hypertension" showed that potassium citrate can lower blood pressure just as effectively as potassium chloride does. Potassium chloride is available as a dietary supplement and potassium citrate is found naturally in many foods. Foods that are high in potassium include bananas, citrus fruit, dried apricots, salmon, flounder, tuna, green leafy vegetables, legumes, melons, potatoes, poultry, tomatoes, whole-grain cereals and yogurt.

The recommended daily intake of potassium for an average adult is about 4,700 milligrams.

3. American Heart Association Recommendations

According to the American Heart Association, to fully manage blood pressure patients need to eat a diet that is both low in sodium and contains enough potassium.

IV. Yogasana – (Yoga Positions Or Postures)

During any exercise the strain on muscles increases, the requirement for blood and oxygen increases but in Yogasanas the requirement goes down as there are no strains and every muscle is relaxed, the requirement for blood and oxygen goes down. This also reduces the strain on mind. Also because of twists and stretched postures, the functioning of endocrine glands, digestive organs, heart and other organs improves. To achieve this even simple Yogasanas are helpful, one can easily practice these yogasanas and get the best, for himself.

Pranayama: Pranayama is control of breath, breathing & blood circulation. In pranayama the breathing is controlled and the rate is reduced, which reduces the strain on heart and also the heart rate and blood pressure. Pranayama reduces the need of oxygen, so also the production of carbon dioxide.

V. Laughter Therapy

Laughter evokes endorphin release and reduces BP.

Laughter therapy for heart disease and blood pressure.

Dr. Michael Miller of Maryland University did a scientific study and proved that laughter improves blood circulation to the coronary arteries and also dilates the blood vessels to help reduce blood pressure. People attending Laughter Yoga clubs were monitored and found that their blood pressure came down considerably and

they could reduce antihypertensive medication. A scientific study in Bangalore, India confirmed that laughter Yoga therapy reduces both systolic and as well as diastolic BP.

VI. Dietary Rules

Food group and suggested serving amounts for the DASH diet(Dietary Approaches to Stop Hypertension)

- Grains: 7-8 daily servings
- Vegetables: 4-5 daily servings
- Fruits: 4-5 daily servings
- Low-fat or fat-free dairy products: 2-3 daily servings
- Meat, poultry and fish: 2 or less daily servings
- Nuts, seeds and dry beans : 4-5 servings per week
- Fats and oils: 2-3 daily servings
- Sweets: Try to limit to less than 5 servings per week.

VII. Transcendental Meditation

Blood pressure response to transcendental meditation: A meta-analysis published by NCBI under pubmed concluded that transcendental meditation has the potential to reduce the systolic and diastolic blood pressure by approximately 4.7 and 3.2 mmHg respectively which are clinically meaningful changes.

VIII. Effect Of Music On Blood Pressure

Effects of music on systolic BP, diastolic BP and Heart rate : A meta- analysis published in Indian Heart Journal 2012 concluded that music had statistically significant impact on reducing blood pressure. There was a greater decrease in diastolic BP and heart rate compared to systolic BP.

IX. Effect Of Exercise On Blood Pressure

Exercise training for blood pressure, A systematic Review and Meta-analysis published by American Heart Association concluded that Endurance, Dynamic resistance and Isometric resistance training lower both systolic and diastolic blood pressure. Isometric training exercises has the highest potential for blood pressure reduction.

X. Conclusion

Diet and lifestyle change, including regular exercise, stress management and self-monitoring with a home blood pressure device, can be used to control and bring down the blood pressure with no side effects. All the methods are proved to be effective for short durations only and hence they are complimentary and cannot be a replacement or substitute for regular anti-hypertensive drugs.

References

- [1]. Jalali, S, Kheirkhah F, Haji Ahmadi, M, SeifiZarei B. EFFECT OF LAUGHTER THERAPY ON BLOOD PRESSURE PATIENTS WITH ESSENTIAL HYPERTENSION. JBUMS. 2008; 10 (5) :35-40.MichaelO'Riordan. Laughing Your Way to Lower Blood Pressure and Less
- [2]. Stress. Medscape. May 15, 2008.
- [3]. Chaya MS, Kataria M, Nagendra R, et al. The effects of hearty extended unconditional (HEU) laughter using laughter yoga techniques on physiological, psychological, and immunological parameters in the workplace: a randomized control trial. American Society of Hypertension 2008 Annual Meeting; May 14, 2008; New Orleans, LA.
- [4]. Dr. Lee Berk and f Dr. Stanley Tan of Loma Linda University,et al. Therapeutic Benefits of Laughter ,September/October 1996 issue of the Humor and Health Journal
- [5]. Raub JA. Psychophysiological effects of Hatha Yoga on musculoskeletal and cardiopulmonary function: a literature review. Journal of Alternative and Complementary Medicine. 2002;8(6):797–812. [PubMed]
- [6]. Anderson JW, Liu C, Kryscio RJ. Blood pressure response to transcendental meditation: a meta-analysis. American Journal of Hypertension. 2008;21(3):310–316. [PubMed]
- [7]. Cohen DL, Bloedon LT, Rothman RL, et al. Iyengar yoga versus enhanced usual care on blood pressure in patients with prehypertension to stage I hypertension: a randomized controlled trial. Evidence-Based Complementary and Alternative Medicine. 2011;2011:8 pages.546428 [PMC free article] [PubMed]
- [8]. Hartley L, Flowers N, Holmes J, et al. Green and black tea for the primary prevention of cardiovascular disease. Cochrane Database Syst Rev. 2013;6(1):CD009934.
- [9]. Khalesi S, Sun J, Buys N, et al. Green tea catechins and blood pressure: a systematic review and meta-analysis of randomised controlled trials. Eur J Nutr. 2014;53(6):1299-311.
- [10]. Kuriyama S, Shimazu T, Ohmori K, Kikuchi N, Nakaya N, Nishino Y, Tsubono Y, Tsuji I. Green tea consumption and mortality due to cardiovascular disease, cancer and all causes in Japan: the Ohsaki study. JAMA. 2006;296(10):1255-65.
- [11]. Lang T, Degoulet P, Aime F, Fouriaud C, Jacquinet-Salord MC, Laprugne J, Main J, Oeconomos J, Phalente J, Prades A. Relation between coffee drinking and blood pressure: analysis of 6,321 subjects in the Paris region. Am J Cardiol. 1983;52:1238–1242.

- [12]. Shirlow MJ, Berry G, Stokes G. Caffeine consumption and blood pressure: an epidemiological study. *Int J Epidemiol.* 1988;17:90–97
- [13]. Periti M, Salvaggio A, Quaglia G, Marzio LD. Coffee consumption and blood pressure: an Italian study. *Clin Sci.* 1987;72:443–447.
- [14]. Fagard R, Cornelissen V. Effect of exercise on blood pressure control in hypertensive patients. *European Journal of Cardiovascular Prevention & Rehabilitation.* 2007;14:12. [PubMed]
- [15]. 15.Loomba RS, Arora R, Shah PH, Chandrasekar S, Molnar J. Effects of music on systolic blood pressure, diastolic blood pressure, and heart rate: a meta-analysis. *Indian Heart J.* 2012;64(3):309–13.