

ROLE OF SĀTTVIC DIET ON HYPERTENSION

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ABSTRACT

The aim of this study was to observe the effect of Sāttvic Diet on Hypertension of subjects with age range 20-40 yrs. For this 20 people (11M, 9F) were drawn from Pañca Karma Centre, Yoga Arogya Polyclinic of Dev Sanskriti University, Haridwar in 2009, October, by using Simple Random Sampling without Replacement (SRSWOR). Pre-post data were collected before and after 10 days by using Sphygmomanometer. Calculated t-value 14.83 for systolic pressure and 6.17 for diastolic pressure are significant at 0.01 level of significance for df 19. It is concluded that Sāttvic Diet plays a positive and significant role in controlling the elevated blood pressure of the subjects.

Key words: *Yogic diet, Hypertension, Yoga Arogya Polyclinic*

Introductory Background

High blood pressure (hypertension) is a potentially serious condition due to its detrimental impact on many body organs and systems. In the ancient literature of India, dating back thousands of years before Christ, hypertension, which is called and described as 'raktagata vāta'. was quoted as one of the major illnesses of human body. (Dwivedi & Dwivedi, 2007). In the modern world, in about 80 percent of the cases of hypertension, the primary or the essential cause has always been found to be the stresses and strains in life. In the year 2000 it is estimated that nearly one billion people or ~26% of the adult population have hypertension worldwide. (Kearney et. al, 2005). It was common in both developed (333 million) and undeveloped (639 million) countries. Hypertension (HTN) or high blood pressure is a chronic medical condition in which the systemic arterial blood pressure exceeds the accepted normal reading of 140/90 as the force of blood against walls gets elevated. (Fortmann & Breitrose, 1996). Hypertension is a dangerous condition that does not have a cure, but it can be kept in check by taking healthy meals. Because it affects the entire circulatory system, hypertension can be detrimental to all the major organs, including the heart, brain, kidneys. It may contribute to death form heart failure, heart attacks, stroke, and even kidney failure. It is classified as either primary (essential) or secondary. Essential

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hypertension is the most prevalent hypertension type, affecting 90–95% of hypertensive patients. **(Carretero, et al., 2000)**. Although no direct cause has been identified, there are many factors such as sedentary lifestyle, stress, potassium deficiency (hypokalemia), obesity (more than 85% of cases occur in those with a body mass index greater than 25), salt (sodium) sensitivity, arsenic exposure, alcohol intake, and vitamin D deficiency that increase the risk of developing hypertension. **(Uchiyama, 2008)**. The remaining 5-10% of cases (Secondary hypertension) is caused by other conditions that affect the kidneys, arteries, heart, or endocrine system. Current conventional treatments for treating hypertension decrease peripheral resistance, blood volume, or the strength and rate of myocardial contraction. Some patients are resorting to alternative medicine either as a supplement or substitute. The process of managing prehypertension according to the guidelines of the British Hypertension Society **(Elley, et al. 2002)** suggest the following lifestyle changes such as: weight reduction and regular aerobic exercise (e.g., walking), reducing dietary sugar, reducing sodium (salt). This step decreases blood pressure in about 33% of people. Many people use a salt substitute to reduce their salt intake. Additional dietary changes beneficial to reducing blood pressure include the DASH diet (**dietary approaches to stop hypertension**) which is rich in fruits and vegetables and low-fat or fat-free dairy products. It is said that our level of development, mental and spiritual, is reflected in the kind of food we eat and our stage of consciousness is revealed in the nature of that chosen food. Both yoga and ayurveda advice on a Sāttvic or a pure vegetarian diet. Such a diet, it is believed, encourages the development of the higher qualities of peace, love and spiritual awareness. **Śrīmad Bhagawad Gītā in 17th chapter verse 8 says** "Foods dear to those in the mode of goodness (**Sāttvik food**) increase the duration of life, purify one's existence and give strength, health, happiness and satisfaction. Such foods are juicy, fatty, wholesome, and pleasing to the heart **(Goswami, 2007)**. **Chāndogyopaniṣad, 1,vii** says that When nourishment is pure, the antaḥkaraṇa becomes pure and memory become pertinent. When memory becomes pertinent, there is release from all the knots of the heart. The basis of an ideal Sāttvic diet is the attitude of ahimṣa or nonviolence. A Sāttvic or yogic diet is first and foremost purely vegetarian, eschewing all such methods which involve the killing or harming of animals. In addition, a lot of emphasis is put on natural foods, i.e., foods grown in harmony with nature, on good soils, ripened naturally, cooked in the right manner and with the right attitude of love. Partaking of a diet such as this helps in the development of prāṇa or vital energy and spiritual consciousness. The true test of our foods comes when we meditate. All meditators know that there are two main problems. One is falling asleep--the tamasic effect. The other is an over-active mind--the rajasic effect. If we want to be able to quiet the mind and maintain our alertness to explore our subtle nature, we need to follow the Sāttvic diet. Such

foods include water, fruit, cereal, most vegetables, beans, nuts, grains, milk and milk derivatives (butter, ghee, cream, yogurt). ("**Sāttvic Diet**", 2011)

Food recommended in Haṭha Pradīpikā are Wheat, rice, barley, śāṣṭika (a kind of rice), good corns, milk, ghee, sugar, butter, sugarcandy, honey, dried ginger, Parwal (a vegetable), the five vegetables, moong, pure water, these are very beneficial to those who practice Yoga, well sweetened, greasy (made with ghee), milk butter, etc., which may increase humors of the body, according to his desire. (**HYP 1/62-63**) In addition, an increase in dietary potassium, which offsets the effect of sodium, has been shown to be highly effective in reducing blood pressure. Dietary and lifestyle changes can improve blood pressure control and decrease the risk of associated health complications. (**Pierdomenico, et al. 2009**). Reducing sodium (salt) in the body by limiting condiment sodium and the adoption of a high potassium diet which rids the renal system of excess sodium. Many people use potassium chloride salt substitute to reduce their salt intake (**Klaus, et al. 2009**). The present study aims at studying the effect of Sāttvic Diet on hypertensive patients of Pañca Karma Centre, Yoga Arogya Polyclinic of Dev Sanskriti University, Haridwar in October 2009 living in Spiritual Environment.

Hypothesis

- 1) Sāttvic Diet significantly decreases High Blood pressure levels (Systolic) of participants.
- 2) Sāttvic Diet significantly decreases High Blood pressure levels (Diastolic) of participants.

Material and Method

Sampling

This study was conducted on 20 people (11M, 9F) who were drawn from Pañca Karma Centre, Yoga Arogya Polyclinic of Dev Sanskriti University, Haridwar. Samples were selected by applying the simple random sampling without replacement (SRSWOR) using lottery method. They were of age range 20-40 yrs.

Research Design: Pre-post single group

Symbolically, A Q1 X Q2

Where,

A = Single group

Q1 = Pre test

X = Sāttvic Diet

Q2 = Post test

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7 (4M, 3F) out of 20 subjects were taking hypertensive drugs from last 2-3 months and 4 (3M, 1F) out of them continued it even during the experiment. There are no clinical symptoms visible in the patients as they belong to the category of pre-hypertension and mild hypertension.

Diagnosis Tool

Sphygmomanometer was used as a diagnostic tool to examine the blood pressure of the patients, in the Pañca Karma Centre of Yoga Arogya Polyclinic, Dev Sanskriti University, Haridwar.

Sāttvic Diet Plan for Hypertensive Patients

Time	Food
4:30am	Ushapaan 2-3 glass
6:45am (Breakfast)	Dashmoolkwath+Tikatu powder+ sprouts(50gm)
10:30-12:00pm (Lunch)	Cooked Vegetables – Parval, Angular guard, Lobia (3/4 th bowl) Chapatti – 4 Green gram - z medium bowl Salad – Raddish, Carrot, Cucumber Rice - 1 medium bowl
4pm	Takkr(Yoghurt) – 1 Glass (200 ml)
7pm (Dinner)	Cooked Vegetables – Parval, Angular guard, Lobia (3/4 th bowl) Chapatti – 4 Green gram - z medium bowl Salad – Raddish, Carrot, Cucumber Vegetable Dalia - 1 medium bowl
8:30pm	Fruits – Papaya, Apple (1 Piece)
9:30pm	Double Toned milk - 1glass (200ml)

Considerations of Sāttvic Diet for hypertensive patients

- The diet given was prepared in Potassium Chloride (Sendha Namak).
- *Takkr* or Yoghurt was given to the patients as it is rich in Potassium Chloride.
- Low calorie diet was given which ranges from 2000cal-2100cal.
- No tea was given.
- Apple and papaya was given to the patient as it reduces the high blood pressure.
- Double toned milk was given as it bears no fat content.
- Calorie consumption=Calorie spent throughout the day (which includes light yogic practices and light schedule of the day)

Procedures

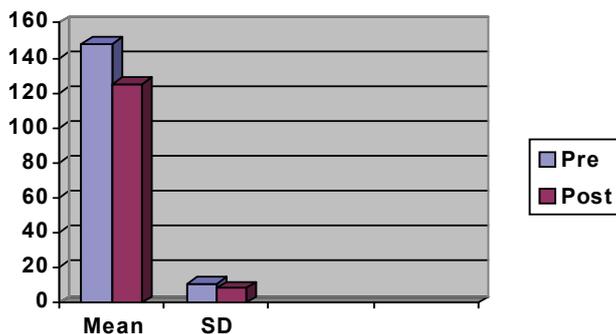
Firstly, by using Sphygmomanometer the Blood pressure of each subject was measured to collect the pre readings and post measurement of Blood pressure for the same subjects were taken after the time period of 10 days.

Result

In order to test the hypotheses the effect of Sāttvic Diet on Hypertensive patients, t – test was applied. The calculated t-value, 14.83 and 6.17 for systolic and diastolic pressure respectively are greater than the critical t-value; for df=19 at 0.01 level of significance.

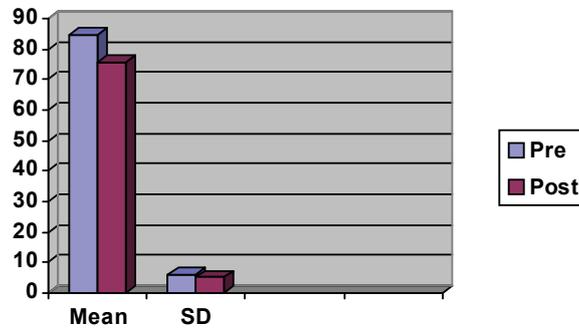
This indicated the significant positive effect of Sāttvic Diet on Hypertension of participants. Hence, researcher’s hypotheses Sāttvic Diet decreases the High Blood Pressure levels (Systolic) of participants and Sāttvic Diet decreases the High Blood Pressure levels (Diastolic) of participants are accepted.

Bar Graph:



Graph: Systolic

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Graph: Diastolic

TABLE: 1

Result Table: Systolic

Group	N	Mean	σ	R	SE _d	df	t	p
Pre	20	148.20	11.181	.769	1.598	19	14.83	0.01
Post	20	124.50	8.382					

TABLE: 2

Result Table: Diastolic

Group	N	Mean	σ	R	SE _d	df	t	p
Pre	20	84.80	6.031	.267	1.522	19	6.17	0.01
Post	20	75.40	5.154					

Discussion

The above table shows that pre mean value of Systolic blood pressure of participants is 148.20 whereas the post means value is 124.50; and the pre mean value of diastolic blood pressure of participants is 84.80 whereas the post means value is 75.40. This result shows that the systolic and diastolic blood pressure of participants significantly decreased by having recommended Yogic diet. There was statistically significant decrease of 23.7 units in post systolic blood pressure level of participants and statistically significant decrease of 9.4 units in post diastolic blood

pressure level of participants. 18 participants showed positive results in diastolic blood pressure, while only 2 participants were found unaffected. In case of Systolic pressure all the participants showed significant difference.

Hence, it is known that decreased Systolic and Systolic blood pressure level of the participants is not due to sampling fluctuations or chance factor but due to the recommended Sāttvic Diet for hypertensive patients in whom they were living in spiritual environment.

Research has shown that a vegetarian diet (i.e., no meat, poultry or fish) helps maintain normal blood pressure. Essential hypertension is undoubtedly a multifactorial 'disease' and it is very unlikely that only one causal factor is involved. Environmental and lifestyle factors that have been invoked to explain an elevated blood pressure include sodium, alcohol and caloric intake, stress and physical inactivity (**Fagard, 2000**). One study involving 59 healthy omnivores revealed that both systolic and diastolic blood pressure fell when they ate a vegetarian diet and blood pressure levels rose again when they returned to their meat eating diet. (**Hallenbeck et.al, 1981**). Low salt intake also have a significant influence on hypertension. In agreement with the findings of others it was observed that sodium, but not chloride, restriction was necessary for the therapeutic effect. (**Grollman, et al. 1945**). Further low intake of sugar and fat also reduces high B.P. High sucrose diet hastens LV dysfunction resulting in greater MHC isoform switch and upregulation of ANF, initiating apoptosis and increase rate of mortality when compared to either low-carbohydrate or high-fat or high starch diets. (**Sharma, et al. 2008**). Potassium supplementation appears to modestly lower the blood pressure in some normotensive and hypertensive patients (**Geleijnse et. al, 2003**).

Conclusion

Thus it can be concluded that a Sāttvic Diet significantly decreases the elevated blood pressure of the subjects. This effect of **Sāttvic Diet** can be used as a supplementary treatment to hypertension.

Limitation and recommendations

Though the utmost care was taken in formulating design & conduction of the study. Yet it can not be said with confidence that study was perfect in all respects. There it is recommended that:

- 1) For more generalization, sample size should be large than taken
- 2) The intervention time should be increased

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