



## **Protocol of an Observational Study Based on the Prevalence of Essential Hypertension in Different Types of *Prakruti* in Wardha City, India**

**Disha Bhatro<sup>1</sup>, Punam Sawarkar<sup>1\*</sup>, Vaishnavi Paraskar<sup>2</sup> and Gaurav Sawarkar<sup>3</sup>**

<sup>1</sup>Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital & Research Centre, Salod (H.), DattaMeghe Institute of Medical Sciences, Wardha, Maharashtra, India.

<sup>2</sup>Mahatma Gandhi Ayurved College Hospital & Research Centre, Salod (H.), Datta Meghe Institute of Medical Sciences, Wardha Maharashtra, India.

<sup>3</sup>Department of Rachana Sharir, Mahatma Gandhi Ayurved College Hospital & Research Centre, Salod (H.), DattaMeghe Institute of Medical Sciences, Wardha, Maharashtra, India.

### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

### **Article Information**

DOI: 10.9734/JPRI/2021/v33i36B31963

#### Editor(s):

(1) Dr. Aurora Martínez Romero, Juarez University, Mexico.

#### Reviewers:

(1) Maria de Mascena Diniz Maia, Federal Rural University of Pernambuco, Brazil.

(2) Majid Mohammed Mahmood, Mustansiriyah University, Iraq.

Complete Peer review History: <https://www.sdiarticle4.com/review-history/71211>

**Study Protocol**

**Received 06 May 2021**  
**Accepted 10 July 2021**  
**Published 12 July 2021**

### **ABSTRACT**

**Background:** In 2000, 26.4% people of the society were suffering hypertension in the globe and around 29.2% are considered to have hypertension till 2025. Coronary Heart Disease, Stroke and other vascular disorders are the adverse effects of hypertension. Hypertension is taxonomically adjacent to *UchchaRakta Tapa* in *Ayurveda*. *Prakruti* is the morphological, physiological, and psychological basic traits, manifested in the intrauterine life and is said to be unchangeable throughout life.

**Objectives:** The present study aims to observe the Prevalence of Essential Hypertension in different types of *Prakruti* to differentiate Systolic blood pressure and Diastolic blood pressure according to various *Prakruti* in the population of Wardha city and contribute to knowledge in this population regarding Essential Hypertension and its relation with *Prakruti*.

**Materials and Methods:** Wardha. Data collected in from the hypertensive patients in Wardha district by personal interviews based on the *Prakruti* Questionnaires.

\*Corresponding author: E-mail: [drsuple.punam@gmail.com](mailto:drsuple.punam@gmail.com);

**Results:** The results will be concluded on the basis of observations drawn from the collected information.

**Keywords:** Hypertension; Uchcha Rakta Tapa & Prakruti.

## 1. INTRODUCTION

*Prakruti* (Ayurvedic constitution) is a composed phenomenon of the morphological, physiological and psychological basic traits. It is manifested in the intra uterine life according to the *Beeja* (genetic) and *Dosha* (body humours viz. *Tridosha*) influence and is said to be unchangeable throughout life [1]. Ayurveda gives an utmost importance to personalized therapy under “*Purusham Purusham Vikshya*” (an individualized approach) principle. Genetic and intrauterine influences make, every individual a distinct entity. Hence, a person has the physiological and pathological variations accordingly. If individual is revealed to any impulse exhibit differently according to different *Prakruti*. The variability in resistance to diseases, different natural onset of the disease and diverse therapeutic responses needs to be explored from the point of view of *Prakruti* [2].

Due to defective way of life hypertension is called lifestyle disorder. Wrong dietic habits and stressful psychological conditions makes the person more vulnerable for its sustainable & complex nature. Hypertension is diagnosed when Systolic Pressure is over 140 mmHg and Diastolic Pressure is over 90 mm Hg [3]. The overall prevalence of hypertension is (26.6%, 29.8% and 25%) in world [4], in India [5], and Maharashtra [6] respectively. 20.6% is the total universality of Hypertension in Wardha District. Whereas universality of males is 21.8% and females is 19.8% [7]. About 57% of deaths in India are due to Hypertension and about 24% deaths are due to CHD and Stroke [8]. Disease and death both are a common fundamental characteristics of mortal life. The survey of this search to find out the feasible remedies always a part of human growth. HTN is asymptomatic, widespread, usually easily treatable, readily visible and leads to lethal complication. They are the important character responsible for cardiovascular disease [9]. Hypertension is the major reason for brain, renal and peripheral arteries disorders as a complication which if not treated on time may cause death [10,11]. Since hypertension is asymptomatic(85%), is it also called as silent killer [12]. As specific cause of hypertension is not known till now [13]. It is assumed that hypertension is caused due to genetic and environmental factors.

It is the commonest cardiovascular disorder, posing major public health challenge to the population in socioeconomic and epidemiological transition [14]. There are many factors like *Madyapan*, *Lavan*, *Diwaswap*, *Krodha*, *Shrama* and *Nidanarthakar Roga* [15] also increase its risk. A high fat diet and body mass index has a positive correlation and physical activity is negatively related to hypertension.

### 1.1 Rationale of the Study

Hypertension is the burning issue leading to multiple cardiac problems in current era of modernization. It is one among the most alarming health problems and is originated silently from faulty lifestyle & wrong dietic habits. Taking into account its global incidence, its control has become the need of the hour. The lifelong and palliative treatment of hypertension is offered in contemporary medical system. Although antihypertensive treatment reduces the risk of cardiovascular and renal disease, long-term use of antihypertensive drugs is associated with various side effects. Then, there is a need to avoid this side effects and complication.

## 2. MATERIALS AND METHODS

### 2.1 Study Design

A cross-sectional observational study using survey strategy in the form questioner based on the personal interview of the individual meeting to eligibility criteria of the study. The primary aim of the study is to determine the prevalence of Hypertension in different *Prakruti* of individuals located in Wardha city. In addition, as secondary objectives are aimed to compare *Prakruti* wise elevated Blood Pressure in the predefined population and to create awareness in the population regarding Hypertension and its relation with *Prakruti*.

### 2.2 Setting

The study will be conducted at two hospitals named as Mahatma Gandhi Ayurved College, Hospital and Research Centre, Salod (H) and Acharya VinobaBhave Rural Hospital, Sawangi (Meghe), Wardha. Data will be collected by personal interviews and the assessment of Systolic and Diastolic Blood pressure. All the

subjects will be personally interviewed based on the *Prakruti* questionnaire. *Prakruti* Questionnaires will help to identify the prevalence of Hypertension according to *Prakruti*.

### 2.3 Participants

Patients having Hypertension According to ICD-10 for essential (ICD-10 Criteria I10) between age group 30-60years, irrespective of gender and people interested to take part in the study. Hypertension is diagnosed when Systolic Pressure is over 140 mmHg and Diastolic Pressure is over 90 mmHg of the patients. Patients other than hypertension and people not interested to take part in the study will be excluded.

### 2.4 Recruitment

By using simple random sampling, all eligible participants will be informed in advance about the nature of the study and the required time for the completion of the questionnaire. Proper informed consent has taken from the patients in their known language (Marathi / Hindi /English). The participation of the patient will be voluntary and not any financial assistance will be given. The questionnaire will be filled by the intern students during the interview of the participants. All the essential information will be recorded like name, address, affiliation, phone number, and email address for further assistance, if required. If the participants have any questions regarding research or study, that will be answered by investigating researchers.

### 2.5 Data Collection

For the development of the *Prakruti* survey questionnaire, the literature search and review regarding *Prakruti* analysis was carried out, and depending upon that information the questionnaire was prepared. The answers will be recorded in the questionnaire by marking the appropriate answer with the help of intern students. The assessment of Systolic and Diastolic Blood Pressure will be recorded in a special structured case proforma. After completion of the survey procedure, the participants *Prakruti* will be analyzed, and concerning to their *Prakruti* the list of Do's and Don'ts (*Ahar and Vihar*) will be provided.

### 2.6 Sample Size

The overall prevalence of hypertension Wardha district is 20.6% according to Anchala R, et al.

[16]. A sample size of 650 participants with complete questionnaires is required (95% confidence interval). Expecting a 10% incomplete questionnaire or technical difficulty, at least 600 participants will be surveyed to achieve the target of 600 complete questionnaires.

### 2.8 Data Extraction, Management, and Statistical Methods

Manual data entry will be done in an excel sheet from marked answers in the completed *Prakruti* questionnaire and case record form. All the data will be analyzed with the help of statistical experts by using the Chi-square test to assess the association between categorical variables and the relation between *Prakruti* and variation in Systolic and Diastolic Blood Pressure. In windows, SPSS software will be used for all statistical analysis.

## 3. RESULTS AND DISCUSSION

Highly increasing the alarming systemic illness such as Hypertension as a result of adoption of unwholesome diet is the major burning issue nowadays. The current established palliative treatment although reduces the risk of cardiovascular and renal disease, however it never alters the pathogenesis of the disease. Moreover, long-term use of antihypertensive drugs is associated with various contraindications and multiple side adverse effects. Therefore, it becomes imperative to search or plan specific Ayurvedic diet or lifestyle which will be wholesome for person with specific *Prakruti* to prevent or control this clinical entity. The disease Essential Hypertension (EHT) is neither described in Ayurveda *Samhita* nor in any *Samgraha Granthas*. Although, the exact etiology of hypertension is not clearly known, the observations reveal that it is a multi-factorial disease involving ecological, biological as well as genetic factors. To prevent the occurrence of this disease, some dietic as well as lifestyle modifications are necessary.

As Ayurveda which is the ancient and holistic science of life, it especially emphasizes over the specific & proper diet & Behavioural regime based on the type of predominance of the Dosha in basic constitution of the Person.

As genetic factors involved in generation of Hypertension and *Prakruti* of every person remains constant from the birth. Moreover, *Aahara*(diet), *Vihara*(lifestyle) and

*Aushadhi*(medication), which are the three pillars of *Prakruti*-based medicine, so observations related with that can be considered outstandingly in context of Hypertension. Therefore, *Prakruti*-based medicine, diet & lifestyle can play a vital role in changing this scenario of hypertension.

However, on assessing the present literature, there is no any published data regarding occurrence of hypertension based on *Prakruti*. Therefore, this study is planned in order to establish specific and suitable recommendations based on *Prakruti* for diet and lifestyle for hypertensive patients to lead a complications free therapy.

Hypertension is diagnosed when Systolic Pressure is over 140 mmHg and Diastolic Pressure is over 90 mmHg of the patients. By definition, observational studies have greater heterogeneity of medical interventions and patient populations that are closer to clinical practice. Observational studies is significant because it is economically affordable than RCT and can certainly be done which is less time consuming.

On extensive review of literature, it is observed that the person with *TridoshajPrakruti and Vata Pradhan Prakruti* are highly vulnerable for getting hypertension in future due to involvement of *VataDosha* in the pathogenesis of hypertension. This statement is supported by Anil Avhad et. al. [17,18]. Few of the related studies on hypertension from modern medicine were reviewed [19-21]. Studies on Ghrelin use in heart failure [22] and effectiveness of Yoga [23] were reported.

According to Ayurveda, *Mana*, and *Purusha* both generate and nourish. Then food is unhomologous then it will causes imbalance in both *Manasa* and *Sharira Dosha* to result several diseases. *Adhithan* of Hypertension a whole body and manna specifically *Sira Dhamani* and *Hridaya*. All *Adhithan* are capable only of denoting characteristics of the disease e.g. Essential Hypertension. *Sushrut* has accepted *Hridaya* and *Sira Dhamani* as mulasthanas for *Pranvaha* and *Rasavaha Strotas* both. They are also accepted *Raktavahi Dhamani* as a mulasthanas for *Raktavaha* and *Mansavaha Strotas* both.

Hypertension is *Tridoshaj Vyadhi* having predominance of *Vatapitta Dosha*. There is *Vikruti* in *Rasa, Rakta Dhatu* and its *Upadhatus*.

Maintenance and regulation of pumping of blood is done by *Vyana Vayu*. Therefore, if there is *Vikruti* or vitiation of *Vyana Vayu* then it promotes contraction of heart and increases pressure on the walls of blood. Due to which there is increase in *Ruksha Guna* and hence *Shoshan* of *Malayukta Kapha* occurs if left untreated and ultimately causes *Kathinya*. There is narrowing of pathway of circulation and *Avarodha* (obstruction) in *Rasa Rakta Vikshepan karma* due to which it has to apply force which elevates *Chala Guna*, hence it again has to exert more pressure on blood vessel. So as to provide nutrition to every body part and this ultimately leads to hypertension.

In Ayurveda, HTN is abnormality of *Rakta Dhatu* and also known as *Shonit Dusti*. They also comprising with *RaktaPitta, Rakta Pradara, Rakta Meha* and *Vatarakta* and some are *Mukhapaka, Akshiroga, Upakush* they are also regarded disease of *Shonit Dusti*.

HTN is abnormal functioning of *Udana* and *Vyana Vayu* along with *Avalambhaka Kapha* and *Ranjaka Pitta* including coordination and loss of their functional integrity. The *Avalambhaka Kapha* gains pathological increase they causes blocks in the arteries and arterioles leading to atherosclerosis and peripheral resistance. Then this pathological process may lead to aggravation of *Rakta* blocking the normal movement and functions of *Vata* leading to a condition is called *RaktavritaVata*. They may lead to many complications of HTN. The involvement of *Mana* factors in the causes of HTN established disease can not be ruled out. The distribution of *Raja* and *Tama bhava* definitely contribute in pathogenesis of HTN.

*Vata* is disturbed with *gati* and *ghandan* functions of the body. The *VyanaVata* is subdivision of *Vata* that control voluntary movement of the body. In Ayurveda, according to *Ashtang Sangraha* the *Vyana Vata* is located in *Hridaya* and travels through the body. *Rasa Dhatu* of *gati* against gravitation is because of *Vata* only. Then *Rasa Dhatu* combine with *Vyana Vata* it exerts pressure on the walls of the *dhamani* they causes movement and continuous supply to *Rasa Dhatu*.

#### 4. CONCLUSIONS

The conclusion will be drawn based on the observations and result identified in the current study. The higher prevalence of hypertension is

expected in *Vata* Predominant and *Tridoshaj Prakruti*. Therefore to attain and maintain good health, certain protocol of lifestyle based on the *Prakruti* in Ayurveda can be established through this observational study that may become a ray of hope of Hypertensive patients. It may provide newer approach to collate such guidelines which may helpful to attain complications free therapy in contemporary science with its optimum outcome.

## CONSENT

Before the investigation and interview, the informed consent of the participants has taken.

## ETHICAL APPROVAL

The cross-sectional survey conducted for six months for that approval has taken from the Institutional Ethical Committee IEC, Mahatma Gandhi Ayurved College, Hospital & Research Centre, Salod (H).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Acharya YT. Sushruta, SushrutaSamhita, Sharirsthana, Garbhavyakarana, 4/78. 7<sup>th</sup> ed. Varanasi: Chaukhambha Orientalia; 2002;362.
2. Bhushan P, Kalpana J, Arvind C. Classification of human population based on HLA gene polymorphism and the concept of Prakruti in Ayurveda. J Altern Complement Med 2005;11:349-53.
3. Whelton et al. ACC/ AHA/ AAPA/ ABC/ ACPM/ AGS/ APhA/ ASH/ ASPC/ NMA/ PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: Executive Summary. 2017;1270-1324.
4. Chockalingam A, Campbell NR, Fodor JG. Worldwide epidemic of hypertension. Canadian Journal of Cardiology. 2006; 22(7):553-5.
5. Daniel V, Daniel K. Exercises training program: It's Effect on Muscle strength and Activity of daily living among elderly people. Nursing and Midwifery. 2020; 1(01):19-23.
6. Bhise MD, Patra S. Prevalence and correlates of hypertension in Maharashtra, India: A multilevel analysis. PLoS ONE 2018;13(2):e0191948. Available:https://doi.org/10.1371/journal.pone.0191948
7. Deshmukh PR, Gupta SS, Bharambe MS, Maliye C, Kaur S, Garg BS. Prevalence of hypertension, its correlates and levels of awareness in Rural Wardha, Central India. Journal of Health & Population in Developing Countries. 2005;21:1-2.
8. Jr, BFP, Federico R. Tewes. What attorneys should understand about Medicare set-aside allocations: How Medicare Set-Aside Allocation Is Going to Be Used to Accelerate Settlement Claims in Catastrophic Personal Injury Cases. Clinical Medicine and Medical Research, 2021;2(1):61-64. Available:https://doi.org/10.52845/CMMR/2021v1i1a1
9. Anchala R, Kannuri NK, Pant H, Khan H, Franco OH, Di Angelantonio E, Prabhakaran D. Hypertension in India: a systematic review and meta-analysis of prevalence, awareness, and control of hypertension. Journal of Hypertension. 2014;32(6):1170.
10. Gupta R. Trends in hypertension epidemiology in India. J Hum Hypertension 2004;18:73e8.
11. Kamble SS, Khuje S, Dwivedi OP, Jain J. Concept of essential hypertension in Ayurvedic perspectives. Journal of Drug Delivery and Therapeutics. 2018;8(6-s):407-10.
12. Buran T, Sanem Gökçe Merve Kılınc, Elmas Kasap. Prevalence of Extraintestinal Manifestations of Ulcerative Colitis Patients in Turkey: Community-Based Monocentric Observational Study. Clinical Medicine and Medical Research. 2020;1(2):39-46. Available:https://doi.org/10.52845/CMMR/2020v1i2a8
13. Kannel WB. Hypertension: reflections on risks and Prognostication. Med Clin North Am 2009;93(3). Available:https://doi.org/10.1016/j.mcna.2009.02.006. 541- Contents.
14. Whelton PK. Global burden of hypertension: an analysis of worldwide data, The Lancet, 2005;365 (9455): 217-223. Available:https://doi.org/10.52845/NM/2020v1i1a5

15. Chen S. Essential hypertension: perspectives and future directions. *J Hypertens* 2012;30(1):42-5. Available:<https://doi.org/10.1097/HJH.0b013e32834ee23c>.
16. Nguyen Q, Dominguez J, Nguyen L, Gullapalli N. Hypertension management: an update. *Am Health Drug Benefits* 2010;3(1):47-56.
17. Daniel V, Daniel K. Diabetic neuropathy: new perspectives on early diagnosis and treatments. *Journal of Current Diabetes Reports*. 2020; 1(1):12–14. Available:<https://doi.org/10.52845/JCDR/2020v1i1a3>
18. Forjaz CLM, et al. Genetic and environmental influences on blood pressure and physical activity: a study of nuclear families from Muzambinho, Brazil. *Braz J Med Biol Res* 2012;45(12):1269e75. Available:<https://doi.org/10.1590/S0100-879X2012007500141>.
19. Bhatt KL, Khader A. Hypertension: From Ayurvedic Understanding. *Journal of Ayurveda and Integrated Medical Sciences* (ISSN 2456-3110). 2020;5(4):130-3.
20. Anchala R Kannuri NK, Pant H, Khan H, Franco OH, Di Angelantonio E, Prabhakaran D. Hypertension in India: a systematic review and meta-analysis of prevalence, awareness, and control of hypertension. *Journal of hypertension*. 2014;32(6):1170).
21. Parwe S, Pawar P, Bahadure A, Nisargandha M, Bhende S., Umate R., Belsare A, Changes on Vital parameters in Brahmi oil Shirodhra in Hypertensive patients – A pilot study, *Wutan Huatan Jisuan Jishu*, 2020: 12: 760-772.
22. Anil Avhad, Vyas H A, Diwedi R R. Understanding essential hypertension through Ayurveda – A Review; *International Journal of Pharmaceutical and Biological Archives* 2013;4(4):591-595.
23. Daniel V, Daniel K. Perception of Nurses' Work in Psychiatric Clinic. *Clinical Medicine Insights*, 2020;1(1):27-33. Available:<https://doi.org/10.52845/CMI/2020v1i1a5>

© 2021 Bhatero et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:*

*The peer review history for this paper can be accessed here:  
<https://www.sdiarticle4.com/review-history/71211>*