RESEARCH PAPER

Nadi Pariksha in Cardiovascular Disorders: A Comprehensive Review of Prakrita and Vikrita Nadi

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ABSTRACT
Nadi Pariksha (pulse examination) is a part of the traditional Ayurvedic clinical assessment and is used to evaluate the functional state of Dosha, Dhatu and physiological balance. The concepts of Prakrita Nadi (normal or physiologically balanced pulse) and Vikrita Nadi (altered or abnormal pulse) provide a traditional framework to comprehend the variations in the characteristics of pulse. These concepts can be studied in relation to pulse rate, rhythm, volume, tension, regularity and peripheral perfusion in cardiovascular disorders. This review aims to critically analyze the Ayurvedic principles of Nadi Pariksha and to explore its potential relevance to current cardiovascular assessment of hypertension, arrhythmias, ischemic heart disease and heart failure. Classical Ayurvedic texts, particularly Sharangadhara and Yogaratnakara, provide a historical basis for pulse examination. Modern cardiovascular literature offers objective methods for evaluating pulse and cardiac functions. However, note that conventional Dosha based pulse interpretations are not equivalent to electrocardiographic diagnoses or validated cardiovascular biomarkers in the absence of appropriate clinical evidence. The review proposes a systematic approach to explore the reliability, reproducibility and diagnostic validity of Nadi Pariksha in cardiovascular disorders. The combination of traditional clinical observations and standardized cardiovascular measures may provide a valuable avenue for future interdisciplinary research.
Keywords- Ayurveda, Nadi pariksha, Prakrita and vikruta Nadi, Cardiovascular diseases.
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1. INTRODUCTION

Ayurveda is the science of health and disease free living. It is knowledge, full of instruction which, if followed religiously and consistently, would prevent the suffering of sickness. It is famous for its Nadi Pariksha. Its importance in assessing Tridoshas for disease diagnosis and prognosis has been highlighted in the classical texts. The diagnostic concepts of Ayurveda are good[1].In ayurveda a state of good health is the balance of the Tridosha, a vitiated Tridosha results in disease. Yoga Ratnakara says Nadi can diagnose all diseases. He compared Nadi to the strings of veena playing all the ragas to emphasize the significance of Nadi Pariksha[2]. The Nadi, or pulse, is a subtle channel of energy or life that flows through the body. Through the Nadi, the Vaidya can feel how the blood rushes from the heart. The pulse at the wrist is a sign of life, and a physician should be able to tell if a patient is well or not just by monitoring their activities. The cardiovascular system consists of the heart and blood arteries[3]. The cardiovascular system is subject to a variety of problems including endocarditis, rheumatic heart disease, conduction system abnormalities, etc.

Materials and methods: The paper is presented as a narrative and critical review of the literature. The literature should be divided in three domains, classical Ayurvedic texts, modern studies of Nadi Pariksha and current literature on cardiovascular assessment.

References to classical texts should be collected from Sharangadhara Samhita, Yogaratnakara, Bhavaprakasha and other relevant basic texts of Ayurveda. Modern literature can be accessed through Pubmed, Pubmed Central and Journal of Ayurveda and Integrative Medicine. Search terms may include 'Nadi Pariksha', 'Ayurvedic pulse diagnosis', 'Prakrita Nadi', 'Vikrita Nadi', 'cardiovascular disorders', 'pulse wave velocity', 'arterial stiffness', 'hypertension', and 'diagnostic reliability'.

The article is about CVD or heart disease which is related to 4 entities below.[4]

1. **Coronary artery disease (CAD):** Reduced myocardial perfusion (also called coronary heart disease [CHD]) causes angina, myocardial infarction (MI), and/or heart failure. It is responsible for one-third to 50 percent of CVD cases.

2. **Cerebrovascular disease (CVD):** include transient ischemic attack and stroke.

3. **Peripheral artery disease (PAD):** especially arterial disease affecting the limbs, which can cause claudication.

4. **Aortic atherosclerosis:** Including thoracic and abdominal aneurysms.

Diagnosis of diseases in Ayurveda-

In Ayurveda three main methods are mentioned for diagnosing.

A**. Darshana Pariksha:** by looking at the patient's external physical characteristics such as complexion, hair and eye color, and their behavior and physical health.

B. **Sparshna Pariksha:** by reaching out to the victim. This includes pulse diagnosis. Palpation, percussion and auscultation.

C. **Prashna Pariksha:** by asking questions about the balance of each of the Doshas.[5]

Nadi- The body has a channel called a nadi that is made up of blood vessels. Nadi Pariksha is the name for the pulse check (Nadi). Nadi Pariksha, according to Ayurveda, is the foundation of Tridoshvijyana. Nadi Pariksha also aids in identifying patients' vitiated doshas. The vitiated doshas that cause ailments are their etiologies; each person's pulse varies from healthy to aturpariksha (diseased person).[6]

Nadi Pariksha-Nadi Pariksha is an ancient Ayurvedic diagnostic technique. The science of Nadi Pariksha involves taking your pulse while diagnosing your body, mind, and subconscious. It is frequently referred to as Nadi Pariksha (pulse diagnosis).[7]

Nadi Pariksha in classical literature-[8]

The following texts are particularly relevant to the theoretical foundation of this research.

Classical text	Specific location to consult	Relevance to the paper
Sharangadhara Samhita	Purva Khanda, Chapter 3, commonly identified as Nadivijnana or the pulse examination section	Pulse examination, pulse characteristics and Dosha-based interpretation
Yogaratnakara	Purvardha, Nadi Pariksha section	Traditional interpretation of pulse qualities and clinical assessment
Bhavaprakasha	Relevant sections on examination and clinical assessment, according to the edition consulted	Supplementary traditional concepts
Charaka Samhita	Sutrasthana and Vimanasthana, especially sections on patient examination, Dosha and clinical assessment	Foundational principles of clinical examination and disease assessment
Sushruta Samhita	Sutrasthana and relevant diagnostic sections	Principles of examination, prognosis and clinical reasoning

Concept of Prakrita Nadi[9]

In this review, the term Prakrita Nadi is used to describe a pulse that is considered to be physiologically normal within the framework of the traditional Ayurvedic paradigm. In present clinical terms the normal pulse is judged by measurable features including rate, rhythm, volume, symmetry and characteristics of the arterial wall. Pulse should be considered in relation to age, physical activity, temperature, emotional state, medications, and clinical condition. The word 'Prakrita Nadi' should not be taken to mean one particular normal heart beat. Variation in rate due to sleep, exercise or medication may be physiological, and a normal pulse is physiologically normal. Conversely, a normal, regular pulse on palpation does not exclude hypertension, coronary artery disease or structural cardiac disease.

Concept of Vikrita Nadi[10]

Vikrita Nadi is taken to mean a pulse which is felt to be altered or abnormal. It can be seen in terms of the classical Dosha interpretation as well as in terms of objectively measurable clinical findings. Clinically observable abnormalities include tachycardia, bradycardia, irregular rhythm, diminished pulse volume, asymmetrical peripheral pulses and an abnormally strong or weak arterial pulse. Such findings cannot substitute for the specific Ayurvedic Dosha classifications; any proposed relation must be explicitly operationally defined and clinically validated.

Method of Nadi Pariksha (Pulse Diagnosis)- [11]

In Ayurveda Pulse diagnosis is made through two methods-

1. **Simple approach or simple pressure -** To know the predominance of body Dosha the doctor should feel three fingers below the radial crust By touching the wrist the movements of Vata, Pita and Kapha are pointed out. The pulsation in 1st finger is an indication of Vata Dosha in the body. The pulse on the middle finger is indicative of the Pitta Dosha in the body. The third finger is the Kapha Doshas of the body and its pulsations.

2. **Medium technique or medium pressure -** This method is used to find out the predominance of Dosha in the body by applying moderate pressure just below the radial crust. This strategy is of great therapeutic and diagnostic importance. The fingers are to be divided into three parts by an imaginary plane.

Nadipariksha Kala- This has to be done in the first three hours of the morning after Mala-Mutravisarjana to Parikshaswabhavikgati of the Nadi. Nadi Pariksha can be done any time of the day or nite in case of emergency.[12]

Site for Pariksha-

Men should feel their right hand, women should look at their left hand. In napumsaka the male and female division should be checked on the right or left hand. The Kurma Chakra which controls the Nadi is on the level of Nabhi and faces upwards in women and downwards in men.[13]

Ayurvedic interpretation of pulse in relation to Dosha[14]

Traditional Nadi Pariksha associates certain qualities of pulses to Vata, Pitta and Kapha. These descriptions should be documented separately from the objective measures of cardiovascular measures for purposes of research.

Traditional framework	Traditional pulse interpretation	Potential modern observation to record	Research limitation

Vata predominance	Traditionally described using qualities such as movement, variability, or irregularity in relevant descriptions	Beat-to-beat variability, pulse irregularity, rate	An irregular pulse is not specific to Vata
Pitta predominance	Traditionally associated with relatively active, rapid, or forceful qualities in certain descriptions	Pulse rate, amplitude, blood pressure	These findings do not establish Pitta predominance
Kapha predominance	Traditionally associated with slower, steadier, or more sustained qualities in certain descriptions	Pulse rate, rhythm, and amplitude	A slow or steady pulse does not establish Kapha predominance
Tridoshic balance	Conceptual state of relative Dosha balance	No single modern cardiovascular parameter	Requires a separately validated traditional assessment protocol

Nadi Pariksha in Heart desease-

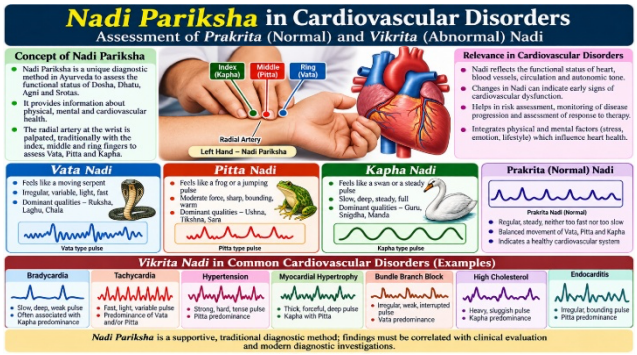
The heart is a very important organ. The average person loses consciousness when the heart stops. But when a yogi stills his heart by yoga practice, his consciousness penetrates the deeper levels of life beyond birth and death. This is what is meant by samadhi, where there is no shadow of death. The practice of going beyond life and death is called Samadhi. That is a state of balance. The heart is felt as a deep throb near the seventh metacarpal, under the index finger. It consists of the inner lining of the heart and the heart muscle. Slow heart rate, heart block, bundle branch block or cardiac hypertrophy with essential hypertension, a form of malignant or chronic hypertension, can be a kapha spike common in the elderly. High cholesterol and high triglyceride levels are an indication that there is a kapha surge.[15]

A pronounced pitta spike below the index finger denotes myocarditis, endocarditis or systemic elevated pitta in the heart. The heart is one of the seats of sadhaka pitta. When the sadhaka pitta is elevated, the person has the qualities of criticism, ambition and competition. But a low heart beat with a pitta spike is not usually a sign of endocarditis or myocarditis. It may be acute hypertension of pitta type or a stressful condition caused by a critical, ambitious or competitive nature. Pitta hypertension is of short duration. If a person gets excited, then relaxes, the blood pressure drops back to normal.[16]

According to Ayurveda one of the duties of sadhaka pitta in the heart is to maintain self-esteem and to convert feelings into emotions. Depression – kapha, pitta or vata nature. Lack of sun light may produce kapha type of depression. In winter and in gloomy days one gets glum. Obesity, diabetes, hypertension and excessive sleep or sluggishness can also cause kapha type of depression. Excess of pitta in the heart can cause depression. This kind of depression is associated with an addiction to achievement or fear of failure and can lead to suicidal thoughts. People with a pitta nature often strive for perfection and when they realize their judgment was wrong, sadness can creep in. Vata-type depression is associated with fear, anxiety, insecurity and fear of the unknown, fear of tomorrow. Vata people get depressed. Fear. But when loss of control causes depression, it is fear.

Tachycardia, atrial flutter with fibrillation, repeated additional systoles, hypotension or alternate pulse are heart disorders of vata type. The pulse is fast on the inhalation and slow on the exhalation when Vata is in the heart. This condition is called sinus arrhythmia. Imaginary cardiac pain is often caused by vata in the heart. A person may experience palpitations, worry, uneasiness or anxiety but the ECG reading is completely normal. Excessive heartbeat is called awareness of heartbeat Palpitations are often caused by physical activity, excitement or anxiety. But in a pathological condition the person can feel his heartbeat without having to make a lot of effort or exercise. This is known as anxiety tachycardia in prana vata problem.

Some yogis stop their hearts through awareness and pranayama. In deep meditation we hear the song of the heart as the unborn child hears it in the womb of the mother. The heart sounds are like heaven music, spiritual music, a drum without fingers, a flute without lips and fingers. When you meditate on heart chakra you can hear different sounds in your ears like ocean sound, tabla sound, drum sound, and ultimately Krishna's flute. The senses are all the cows. They all come together at the sound of a flute. And make Krishna, the inner higher awareness. Every time someone listens to their heartbeat, the ego dies. The ego hates to die. Then one will be flowing with the love, the inner sound, the primordial sound of his own prakruti. Die to ego, power, name, status. This sound is called "prakruti sound". [17]



Hridroga Nadi gati - karkash, krish, drutagamini & nimna-madhya gamini nadi gati.

Prakrita and Vikrita Nadi in cardiovascular physiology[18]

Cardiac contraction produces pressure waves that travel through the arterial tree. The arterial pulse is a result of these pressure waves. Its character is determined by cardiac output,

stroke volume, arterial compliance, vascular resistance and timing of reflected pressure waves.

The observable arterial pulse is a common basis for modern pulse assessment and Ayurvedic Nadi Pariksha, but the interpretation of the pulse is different. A relevant research question is whether standardized Ayurvedic pulse assessments are reproducible in relation to objective cardiovascular variables.

R. G. et al. Journal of Ayurveda and Integrative Medicine, 2019. Traditional nadi pariksha characteristics including gati (movement), vega (speed), sthiratva (stability) and kathinya (hardness) and their possible relationships with pulse wave velocity, pulse rate variability and arterial stiffness: A review. The authors are not claiming these are equivalent measures, but are calling for more research.

Relevant cardiovascular parameters[19]

Heart rate and rhythm- The pulse rate is measured in beats per minute. Rhythm assessment determines whether the intervals between beats are regular or irregular. Irregularity may need electrocardiographic evaluation.

Blood pressure- Using a validated device the blood pressure is measured. Pulse palpation alone is not a reliable method for diagnosing or excluding hypertension.

Arterial stiffness and pulse waveforms- Both instrumental waveform analysis and pulse wave velocity can characterize aspects of arterial function which cannot be reliably quantified by subjective palpation alone.

Clinical relevance in specific cardiovascular disorders[20,21,22]

Hypertension (Raktagata or high arterial pressure in modern clinical terms)

Hypertension is defined as sustained elevated arterial blood pressure and diagnosed by standardized blood pressure measurements, including out-of-office measurements where clinically indicated. Normal peripheral pulse does not rule out hypertension, as many patients are asymptomatic and have no obvious pulse abnormality. A relevant clinical study on Maharishi Nādi-Vigyān was performed by Palakurthi and colleagues in 160 participants. They reported 95% agreement with classification of hypertension based on blood pressure, and reported Cohen's kappa of 0.88 . The study provides a particular research direction but the finding should be viewed in the light of the study design and population. This does not validate the diagnostic accuracy of all types of ayurvedic Nadi Pariksha and neither does it prove the pulse examination can replace the standardized blood pressure measurement.

Heart arrhythmia

An arrhythmia causes a fast, slow or irregular pulse. Some rhythm disturbances can be suspected palpatorily, but the type of arrhythmia cannot be reliably determined by pulse palpation alone.

For this topic, the comparison should be:

- Traditional Nadi is assessed by the respective trained practitioners independently.
- Radial pulse rate and rhythm was recorded as per a standardized protocol.
- Twelve-lead ECG or adequate ambulatory ECG monitoring for rhythm diagnosis.
- Concordance between observers and between traditional and objective rhythm findings.

The main research question is whether any of the pre-selected Nadi features are linked to specific ECG-confirmed rhythm abnormalities. This association must be tested prospectively and not inferred from a Dosha description.

Ischemic heart disease-

Ischemic heart disease is defined as an imbalance between the blood supply to the myocardium and the oxygen demands of the heart. Clinically significant coronary artery disease can be present with a normal radial pulse. Diagnosis is by clinical assessment and, as appropriate, ECG, cardiac biomarkers, imaging or functional testing of the coronary arteries. The possible significance of Nadi Pariksha in this context is therefore exploratory: it can be studied as an additional traditional clinical observation, but should not be presented as an established screening test for coronary obstruction or myocardial ischemia.

Heart failure-

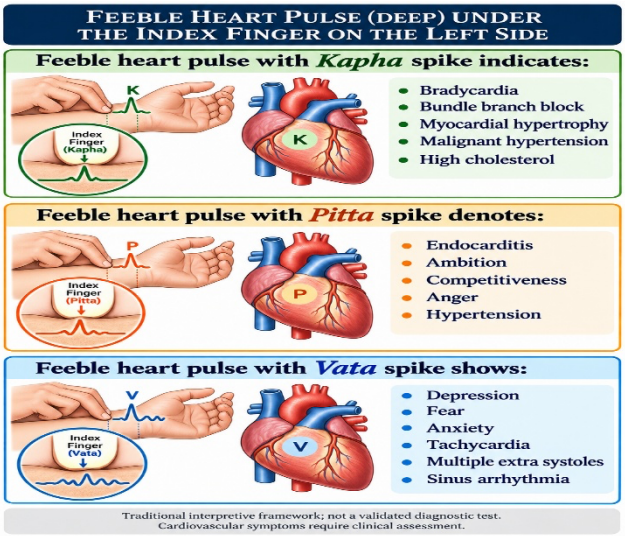
Heart failure may be associated with tachycardia, weak peripheral pulses, altered perfusion and other circulatory abnormalities. These findings are nonspecific and need to be interpreted in conjunction with symptoms, signs, ECG, echocardiography and relevant laboratory investigations. A research study can study the correlation of the pre-determined Ayurvedic pulse assessments with objective measures of severity of heart failure. This would need to control for medications, volume status, rhythm, age, and other factors impacting the pulse.

Comparative framework: Prakrita Nadi and Vikrita Nadi

Parameter	Prakrita Nadi: proposed operational description	Vikrita Nadi: observable variation	Modern assessment
Gati (movement)	Smooth, coordinated pulse movement	Perceived irregularity or altered movement	Pulse rhythm and waveform analysis
Vega (speed)	Rate appropriate to the clinical context	Increased or decreased pulse rate	Heart rate in beats/minute
Sthiratva (stability)	Consistent pulse characteristics	Variable rate, rhythm or amplitude	ECG and beat-to-beat interval analysis
Bala (strength)	Adequate palpable pulse volume	Weak or unusually forceful pulse	Pulse amplitude; clinical assessment of perfusion

Kathinya (hardness)	No clinically apparent abnormal arterial tension	Increased perceived arterial firmness	Arterial stiffness measurements, where indicated
Samata (symmetry)	Comparable pulses at corresponding sites	Unequal or absent peripheral pulses	Bilateral pulse examination and vascular assessment

Feeble Heart Pulse (Deep) Under the Index Finger on the Left Side



Discussion-

The Nadi Pariksha holds a very important place in the traditional clinical examination of Ayurveda. Its ideas about the movement of the pulse, speed, stability, and the arterial characteristics, constitute a framework for the investigation of practitioners' interpretation of the pulse. The contemporary cardiovascular examination also assesses pulse rate, rhythm, volume and arterial properties, providing a practical opportunity for comparative research. However, similarity in the perceivable characteristics of the pulse does not prove equivalence between the Ayurvedic Dosha classifications and modern cardiovascular variables. For example, a rapid pulse may result from fever, exercise, anxiety, anemia, medications, or cardiac disease. An irregular pulse is also consistent with an arrhythmia but requires appropriate confirmation. The literature supports further research on standardization, reproducibility and diagnostic validity. Kumar et al. in their 2019 review specifically requested further studies on the association of traditional Nadi assessment and modern pulse wave measurements. The inter-rater reliability results reported by Kurande and colleagues also demonstrate the need for reproducible assessment procedures.

Hence, Prakrita and Vikrita Nadi should be explored as pre-determined traditional assessment categories rather than to consider them as established diagnostic markers. Appropriate studies may determine whether these categories provide information additional to the traditional cardiovascular assessment. Until adequate evidence becomes available, Nadi Pariksha should be complementary to validated cardiovascular diagnostic modalities rather than a substitute.

Conclusion-

This is the basis of ayurvedic pulse diagnostics. We should all do our best to stay healthy all our lives. Nadi Pariksha is to understand the following qualities in a person: Helps to know the "Original Constitution at Conception" (Prakruti) of a person. The Ayurvedic books explained the nature of nadi and its changes in a fairly qualitative way, using the ancient metrics gati, vega, sthira, capala and kathinya. This study comprehensively covered the current parameters which are closely related to the old parameters such as pulse wave velocity, pulse rate variability and artery hardness. In the case of ayurveda, the study of these modern features is highly needed to find out the well-kept secrets of Nadi Pariksha. Today, there is an urgent need to extend the latest advances in pulse measurement methods and tools to develop the framework for Nadi Pariksha, and to apply the scientific method of pulse-based diagnosis. In an effort to reach the climax of Nadi knowledge, we Ayurvedic academics have to convert the knowledge of Nadi which is based on the subjective knowledge and experience of the physician, into objective parameters using the tools of modern science. Nadi pariksha is very useful for heart problems also.

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References-

1. Basavarajeeyam Rangacharya V. Central council of research in ayurveda and siddha, New Delhi. 2007.
2. SSB M. Yoga Ratnakara. 2nd ed.vol. I. Varanasi: Chowkhamba Sanskrit Series Office; 2011.
3. Farley A, McLafferty E, Hendry C. The cardiovascular system. 2012 Oct 31-Nov 6Nurs Stand. 27(9):35-9.
4. Heart Disease and Stroke Statistics-2018 Update: A Report From the American Heart Association. Circulation. 2018.
5. Sharma PV. English Translation of *Charak Samhita*. Choukhamba Orientalia; 1981.
6. Abhaykatyayan. *Nadi Pariksha*. ravnkutnaidaniktika. Chukhamba Surbharati Prakashan; 2014.
7. Ayurvediya Nadi-Parikshavigyan, Dr. G.P.Upadhyaya, chapter-4, P-77,Chaukhambha Surbharti Prakshna, Varanasi 2006.
8. Palakurthi M, Fergusson L, Dornala SN, Schneider RH. Diagnostic Validity of Āyurvedic Pulse Assessment: Maharishi Nādi-Vigyān in Cardiovascular Health. Journal of Maharishi Vedic Research Institute. 2021;17:33–73.
9. Kurande VH et al. Interrater Reliability of Diagnostic Methods in Traditional Indian Ayurvedic Medicine. Evidence-Based Complementary and Alternative Medicine. 2013.
10. Kumar PVG, Deshpande S, Nagendra HR. Traditional practices and recent advances in Nadi Pariksha: A comprehensive review. Journal of Ayurveda and Integrative Medicine. 2019;10(4):308–315
11. Dr. S. K. Pathak and Dr. Jitender Kumar Rana - traditional method of nadi pariksha with its significance World Journal of Pharmaceutical Research, 2017.

12. Yogaratanakar, Vidyotini Hindi Commentary By Vaidhyashri Laxmipati Shastri, Varanasi, Chaukhambha Ayurveda Prakashan, Verse 11, Pg 6.
13. Dr. Goli Penchala Prasad Dr. K. Bharati Dr. R.K. Swamy, Some Important Aspects Of Nadipariksha From Basavarajiyam, Regional Research Institute (Ay), IGMS Complex, Labbipet, Vijayawada.
14. Secreat of the pulse- The Ancient Art of Ayurvedic Pulse Diagnosis by Dr. Vasant Dattatray Lad- 1996 page no-66.
15. Secreat of the pulse- The Ancient Art of Ayurvedic Pulse Diagnosis by Dr. Vasant Dattatray Lad- 1996 page no-67.
16. Secreat of the pulse- The Ancient Art of Ayurvedic Pulse Diagnosis by Dr. Vasant Dattatray Lad- 1996 page no-68.
17. Secreat of the pulse- The Ancient Art of Ayurvedic Pulse Diagnosis by Dr. Vasant Dattatray Lad- 1996 page no-69.
18. Whelton PK et al. 2017 ACC/AHA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults. Hypertension.
19. Kachare KB, Girbide SG, Bankar SA (2016). Nadi Pariksha: An Ancient Ayurvedic Method of Diagnosis. Journal of AYUSH: Ayurveda, Yoga, Unani, Siddha and Homeopathy, 5(3).
20. Review study of pulse diagnostic parameter on finding aggravated Doshas and their characters by Nadi Pariksha. Journal of Ayurveda and Integrated Medical Sciences.2014.
21. Laurent S, Cockcroft J, Van Bortel L, et al. (2006). Expert consensus document on arterial stiffness: methodological issues and clinical applications. European Heart Journal, 27(21), 2588–2605.
22. Vlachopoulos C, Aznaouridis K, Stefanadis C. (2010). Prediction of cardiovascular events and all-cause mortality with arterial stiffness: a systematic review and meta-analysis. Journal of the American College of Cardiology, 55(13), 1318–1327.