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Utility of Medical Instruments in Nadi Pareeksha: A Critical Review

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ABSTRACT:

Acharya's who are considered as *apta* have explained well about importance of *nadi pareeksha* in diagnosis of disease in classical books of *Ayurveda*. Yoga ratnakara, Sarangadara samhitha, Bsavarajeeyam, Bava prakasha have mentioned about *nadi pareeksha* in *Ayurveda*. By the *nadi pareeksha* one can get so many factors such as *Gati*, *Vega*, *Sthiratwa*, *Katinyata* of the *nadi* and by the proper examination one will be able to diagnose the disease. *Nadi pareeksha* can be correlated to the pulse examination and now days the concept of relation between pulse wave velocity and heart disease has gained much attention and being analyzed so proper *nadi pareeksha* becomes more important. In this background the present article discusses the need of a proper instrument for examining *nadi* and comparison of existing two such instruments.

Key words: *Nadi pareeksha, rogi pareeksha* and *roga pareeksha, nadi tharangini, veda* pulse

INTRODUCTION

In any branch of medical science thorough examination of the patient is needed to arrive at a proper diagnosis. Only proper diagnosis can lead to an effective management of disease. In Ayurveda, our *acharyas* have clearly mentioned about *roga pareeksha* and *rogi pareeksha*¹ for the accurate *diagnosis* and for effective management. Different kinds of *pareeekashas* such as *trividha*², *chaturvidha*, *panchavidha*, *astavidha*, *dasavidha pareekshas*³ are detailed in our classics. Among all these pareeksha's nadi pareeksha is told in *astha sthana pareeksha*⁴ by *Yoga Ratnakara*. Heart or hruday is influenced by pain or happiness of human. The physical health, diseases or physiological variations, will have a direct bearing on heart and thereafter circulation. Be it physical, mental or variations in function of heart, has to be assessed by involvement or dominancy of *vatadi dosha*. *Nadi pareeksha*, pulse examination therefore is an essential tool to assess and visualise dosha. *Ayurved*a scholars had two views as far as *nadi pareeksha* is concerned. That is *nadi pareeksha* will give idea about the increased or dominant do*sha* only and secondly, *nadi pareekshas* in an essential tool to assess and visualize dosha.

Nadi pareeksha

Nadi pareeksha can be included under *sparsha pareeksha* and is detailed by *Yoga ratnkara* under *ashta sthana pareeksha. Srangadara samhitha, Basvarajeeyam, Bhava prakasha* have also given their contribution for *nadi pareeksha* in classics. It is told that just as *thantri* in *veena* is specific about the *swara's hastha nadi* ⁵ is also specific about different doshic conditions and diseases. Acharyas have mentioned how to elicite *nadi*, how to infer *nad*i in different doshic stages, *asadhya nadi lakshana*, contra



indicated conditions for checking *nadi*, alteration of *nadi* associated with mood changes, different sites of *nadi* usage of left hand for females and right hand for males, and some *rishta laksana's.Nadi pareeksha* can be correlated to pulse examination in modern science.

Elicitation of nadi and doshic relation

Nadi has to be elicited at the root of the hand(*angungushta moola*) that is radial artery⁶.Three fingers has to be used for *nadi pareeksha* which are fore,middle and ring finger.The nadi which is obtained above the fore finger represents *vata*,middle finger denotes *pitta* and that of ring finger gives idea about *kapha*⁷.Contraindication of *nadi pareeksha* includes the person who have just finished the bath,food,who have done *abhyanga*,who is exposed to sun etc⁸.

Table 1 Shows Different *nadi gati* in different *dosa dominance* ⁹ Table 2 Shows Different conditions and patterns of *nadi*¹⁰

Lacunae In Current Clinical Examination Through *Ayurveda:*

Nadi pareeksha is absolutely subjective. The physician who checks the nadi has to be very much concentrated while checking the nadi of the patient. If the one who checks the pulse is not fully concentrated correct diagnosis can't be done. Even though so many things are explained in a wonderful manner in Ayurveda than the modern science, lack of standardisation of particular information, some of the population still doubts the Ayurveda branch of medical science. Nadi pareeksha is one among that. As Avurveda treats every disease by considering the dosa, understanding of nadi based on variation of dosa is needed and only skilled practitioners can assess nadi like that. So it will be helpful to invent a new instrument which have inbuilt mechanism to assess the the dosa involvement along with the nadi. So invention of such instruments with the help of engineering will make a historic movement as the invention of any other medical device. So in this particular article we will be comparing two such known instruments called nadi tharangini and veda pulse.

Nadi Tharangini

Nadi tharangini is an instrument which produce individualized report on *nadi* readings while also taking into consideration variations due to geographical location, and climatic condition. Nadi tharangini is claiming that it is an ideal fit for doctors who are practitioners of Ayurveda, homeopathy, naturopathy, acupuncture and alternative traditional medicines to unmask really helpful information about the patients¹¹. The *nadi* examined is shown in the form of a graph which simplifies the prognosis.

Nadi tharangini has three linearly placed pressure transducers which can be placed in the tridosha location of radial artery and the pulse will acquired from vata, pitta, and kapha locations. While analysing the pulse with nadi tharangini the beat to beat alterations of the pulse wave shows significant variations across different age groups and disorders. It mainly looks the arterial stiffness aspect and it correlates with the katinya bhava. So arterial stiffness is measured from three locations is analyzed significantly across vata, pitta and kapha locations, that is the pressure wave as it propagates from central to peripheral arteries gets amplified at peripheral arteries due to multiple reflections from various reflection sites. As a result due to the pulse amplification peripheral arteries do not give accurate results in cardio vascular studies and hence arterial stiffness measured from peripheral arteries are not used as a surrogate for aortic and carotid stiffness¹².As the significance of arterial stiffness is well understood from the text of Ayurveda and also from the recent studies nadi tharangini could be dealt with tridosha aspect also.

Veda Pulse

Veda pulse is a hardware and software kit was used for objective quantitative assessment of pathological dosha dominance based on heart rate variability(HRV). The work of heart for 5 minutes by placing electrodes on wrists, software filtration of the signal with further receiving of HRV periodogram and analysis of cardio intervelogram using methods of spectral data analysis they have determined the *doshic* predominance¹³.

Cardiointervalogram reflects an effect of the various regulatory system on a heart rate(sympathetic and parasympathetic divisions of the autonomic nervous system and an and effect of the humoral system). To accurately determine an effect of these regulatory system, in the wave structure of a cardo intervalogram they detects three types of waves, depending on their duration¹⁴.But the exclusion from the study included: medications for cardiac ailments influencing chronotropy of sinus node, multiple heart rhythm failure divergence in data in verification of pathological dosha dominance between checklist of dosha predominance symptoms and expert assessment. HRV recording with many artefacts¹⁵.Under this conditions they have graded vata, pitta and kapha on ten and came to an average value and considered that as a standard value to determine vata, pitta and kapha.

DISCUSSION

The above explained two instruments will give the pulse rate in certain ayurvedic perspective. Nadi tharangini will give pulse rate with some guna that is based on the consistency of blood vessel and thus it predicts whether the patient is prone for getting any heart disease or not or having heart disease by detecting the pulse rate .In veda pulse an attempt to incorporate tridosha in pulse examination has done. Veda pulse has actually given a new dimension in figuring the pulse rate as per ayurvedic view. While in nadi tharangini the consistency of the blood vessel and its relation for the fore coming heart disease or existing one is dealing. By the pulse rate itself we can analyse the consistency of the blood vessel to some extent. As ayurvedic physicians we need an instrument which can assess pulse rate with tridosha instantaneously. The dosha assessment has to be made standardized with a large population by the told method in veda pulse and this can be coded in a chip and can be used to get the pulse rate with tridosha more precisely. This kind of further improvement with the help of physics and Information technology sector will make the instrument more handy and easy to work.

CONCLUSION

Rogi pareeksha is having prime importance in Ayurveda and in our system of medicine everything is related with *tridosha sidhantha*. So understanding the pulse on the basis of *tridosha* is needed in our science and understanding *nadi* much precisely can be done by only a well experienced physician and others may fail in that process. So on such instrument which can assess the pulse with the *doshic* imbalance which is involving will helps the physician to make correct diagnosis and thereby can give appropriate medication. And from the above two instrument veda pulse has satisfied with the *tridosha* aspect than nadi tharangini. So by comparing those two veda pulse is the better one and can be improved more.

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DOSHA	NADI GATI
Vata	Sarpa(snake), jalouka(earthworm)
Pitta	Kaaka(crow),lavaka(quail),manduka(frog)
Kapha	Rajahamsa(flamingo),mayoora(peacock),kukkuda(hen)
Vata pitta	Sarpa(snake), bheka(frog)
Vata kapha	Sarpahamsa(mix of snake and swan)
Pitta kapha	harihamsa gati(mix of monkey and swan)

 Table 1 Different nadi gati in different dosa dominance
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Table 2 Different conditions and patterns of *nadi*¹⁰

CONDITION	NADI TYPE
Jwara(Fever)	Ushna(warm), vegavati(rapid)
Bhaya and chintha(fear and thinking)	Ksheena nadi(shrunken)
Mandagni(reduced digestive fire)	Mandatara(slow)
Asrugpoorna(over filled blood vessels)	Koshna nadi(can feel heat at the site)
Saama condition(when food is not digested)	Gurvi(Heavy)
Kshudita(hunger)	Chapala(irregular and diminished)
Ksheena dhathus(diminished dhathus)	Mandatara(slow)