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A Case Series on Yakkai Ilakkanam (Body Constitution) in Systemic Hypertension (Raththa Kothippu NOI)

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ABSTRACT: The conceptualization of Yakkai ilakkanam (bio-types) according to tri-humoural forces is strongly emphasized in Siddha system of medicine. Based on this fundamental principle of Muththaadu (3 vital life forces *i.e.* Vali, Azhal and Aiya udal), 9 types of body constitutions are classified. The Objective of this case series is to assess the most common bio-type of Systemic Hypertensive patients and to interpret the association of *Yakkai ilakanam* to history and control of BP. A standard questionnaire for YI is procured from repository consisting of total of 30 questions. 50 patients with history of hypertension are included in this study. YI of Hypertensive patients are assessed along with 2 demographic data and a questionnaire for assessing the prognosis of hypertension. The study is carried out after obtaining informed consent and confidentiality is maintained throughout the study. After assessing the individuals, the most prone bio-type for Systemic hypertension is discussed. The results are interpreted in association with the history of Hypertension categorically, *i.e.* 1-6 months, <6 months-2 years, 3-5 years, 6-10 years, >10 years. The Patients' whose blood pressures are under control (Consecutive 2 visits), not under control and their respective YI are discussed. The data are entered into SPSS and results are pictorially depicted. This study is a primitive descriptive study which helps us in understanding the body constitution of Hypertensive patients. This study concluded that the most common yaakai ilakanam among hypertensive patients are *vaathapitham* (42%) which can be considered as the most prone body constitution for hypertension.This study could be further carried out on a large scale. A follow-up study could be done as a cohort to assess the impact of the disease itself in Yakkai ilakanam.

Keywords: Yaakai ilakkanam, Systemic hypertension, Raththa kothippu noi, Case series, Body constitution.

INTRODUCTION

Siddha system emphasizes the concept of individual treatment. The soul of this concept emerges from the ideology of *"whatever is in macrocosm is in microcosm"*. The treatment methodology and approach differs to each person conditioned upon one of the basic Siddha conceptual framework *"Yaakai ilakanam"*. The understanding of molecular basis of phenotypic diversity and interpretation of patterns of gene expression variation is an arising front-line field of research. *Yaakai ilakanam* is the psychosomatic (Body-mind constitution of an individual) expression that rides dynamically through the three humors *(trithodam)* and their proportion in genome. The post-human genome era, embarked on several major international projects and subsequently their databases such as Human Genome Project, Genome Wide Association Studies, human ENCODE consortium, dbSNPs, dbCNVs, HapMap have all contributed significantly to the understanding of the position, degree, nature, and structure of DNA and its contributions to number of phenotypes as well as diseases. The variation in anatomical, physiological, immunological, psychological, disease susceptibility, disease prognosis, and response to treatment, forms the basic principles of personalized medicine. These variations are diverse and efforts are being made to classify humans based on geographical origin, ethnicity, race, and other factors (Rotti *et al.*, 2014). Based on this fundamental principle of trithodam *(Vazhi, Azhal, Iyam- the 3 vital life forces)*, the body constitution is classified into 9 types eliciting exclusive characteristic features of each category (Kandaswamy Mudaliar V, 1975) (Kannusamy Pillai, 2014). Many cross-sectional studies and case series with *Yaakai ilakanam* have been carried out before. In one such cross-sectional study, conducted in 100 patients of Hypothyrodism *(Kuraiveethana noi)* with an objective of evaluating the common body constitution considering it to be the predisposing factor concluded that *Kabhavatha thegi* were more prone to the particular disease (Priya *et al*., 2019). In another cross-sectional study on *thega ilakanam* of 50 rheumatoid arthritis

patients concluded that *vathakabha and vathapitha thondha thegi* body constitution are more prone (Mahespriya, 2021). A case series conducted in 60 patients grouped into 30 case and 30 control showed that patients with Type 2 Diabetes mellitus mostly belong to *Pitham, Pithavadham and Pithakabha thegi.* Assessment of *Yaakai ilakanam* has always been a challenging one because of the vast literary evidences and concepts. An extensive literature review on 25 Siddha books provided moderate to strong evidence of information and that study concluded by framing 45 characters under 3 domains physical, physiological and psychological (Muthiah *et al*., 2019). In a dissertation titled "Evaluation and standardization of *udal ilakanam* characteristics based on Siddha concepts", a standard thegi questionnaire comprising of 30 questions is established (Kalanidhi, 2019). Though the concepts of *Yaakai ilakanam and prakruthi* seem to be similar, they are subtly different from each other. Many progressive researches are carried out in Ayurveda in this sector and a software called Ayusoft prakriti has been developed by C-DAC, Pune, India (Hemant Bhargav *et al.,* 2021). YI-ABC (Yaakai Ilakanm- Assessment of Body Constitution) has been devised by Siddha SCRI, Chennai through comprehensive review of literature and research.

OBJECTIVE:

— To assess the most common bio-type of Systemic Hypertensive patients.

— To interpret the association of *Yakkai ilakanam* to history and control of Systemic hypertension.

MATERIALS AND METHODS

Study Design	A Case series
Sample Population	Patients attending OPD & IPD of Government Siddha Medical College & Hospital, Palayamkottai, Tirunelveli with history of Systemic Hypertension
Inclusion Criteria	Volunteering individuals with known systemic hypertension regardless of age, sex.
Exclusion Criteria	Patients who are not willing to participate
Sample Size	50
Sampling Technique	Non-randomized convenience sampling
Study Period	3 months (September-November 2022)

Study Tool. The Questionnaire comprises of 2 sections. Section I involves 2 demographic questions and a total of 8 questions including BMI, 2 consecutive BP readings, History/Chronicity, type of hypertension, regularity of medicine intake, details of current treatment (Siddha/other AYUSH, Allopathy or Both), Control/Prognosis, complaints suggestive of complications.

Section II includes a standard questionnaire for YI which is procured from a dissertation work in repository consisting of total of 30 questions. The study is carried out after obtaining informed consent and confidentiality is maintained throughout the study.

The Fig. 1 given below states the methodology incorporated in this case series.

RESULTS

About 11 variables are taken into consideration. Among 50 hypertensive patients, 26 are male (52%) and 24 are female (48%) as given in Fig. 3. 23 individuals belong to the age group of 40-49 (46%), 1 in 20-29 age group (2%), 7 in each 30-39 and >60 age groups (14%). 12 among 50 belong to 50-59 (24%) as depicted in the bar chart in Fig. 2.

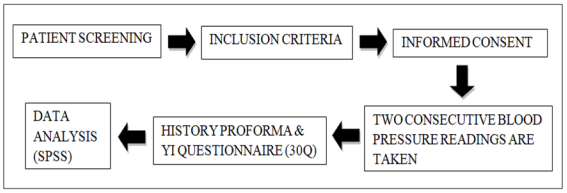

Fig. 1. Methodology.

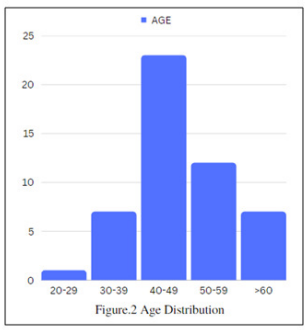

Figure.2 Age Distribution

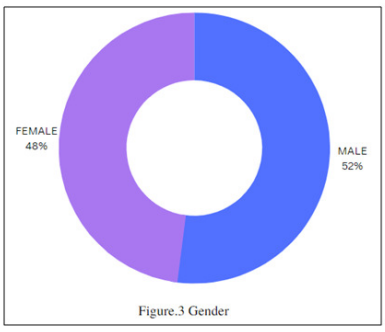

Figure.3 Gender

Considering BMI, 15 (30%) are normal (18.5-24.5); 21 (42%) are overweight with a BMI of 25-29.9. 14 (28%) of them are obese (28%) as shown in Fig. 4. 16 (32%) patients are hypertensive since 3-5 years, 15 (30%) have history of hypertension since >6 months-2 years.

About 5 (10%) of them have a history of hypertension >10 years and 1-6 months respectively. 9 (18%) of them have history of 6-10 years in Fig. 5.

As depicted in the Fig. 6, about 32 (64%) patients have essential hypertension and 18 (36%) patients have secondary hypertension. 18 (36%) patients take allopathy medications and 10 (20%) take Siddha/Other AYUSH treatment. 22 (44%) patients take both integrative treatments shown in Fig. 7.

About 42 (84%) patients take their medications regularly as shown in pie chart below (Shown in Fig. 8).

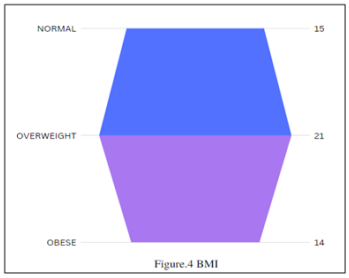

Figure.4 BMI

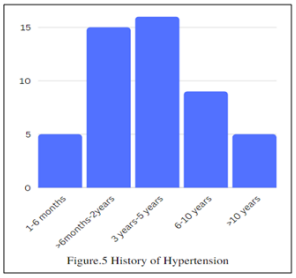

Figure.5 History of Hypertension

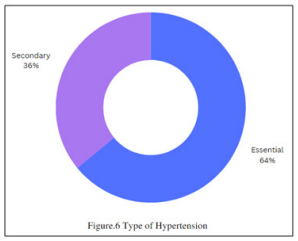

Figure.6 Type of Hypertension

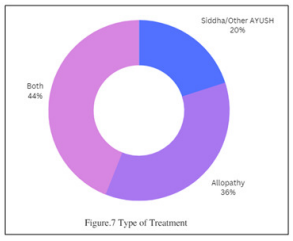

Figure.7 Type of Treatment

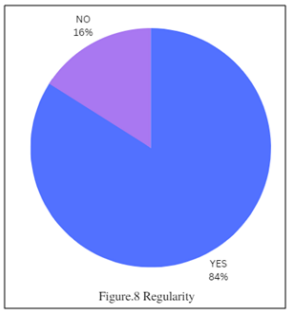

Figure.8 Regularity

While looking for any complaints suggestive of complications of hypertension, 20 (40%) seem to have complications with headache as major complaint (20%). Sweating, Cardiovascular, Neurological-Renal comprises of 2% respectively. Headache-sweating, Neurological complaints are present in 6% respectively (Fig. 9, 9.1). On two consecutive blood pressure readings and history of prognosis from the patients, the control of blood pressure among the patients are recorded. About 33 (66%) of them have their blood pressure under control (Fig. 10).

Considering the frequency of checkup, about 17 (34%) in 50 do a weekly checkup on blood pressure while 10 (20%) do rarely check their blood pressures. 13(26%) do a daily checkup as shown in Fig. 10.

Complaint	No	60.0%
	Yes	40.0%
IF YES	-	60.0%
	Headache	20.0%
	Sweating	2.0%
	Headache, Sweating	6.0%
	NEUROLOGICAL	6.0%
	CVD	2.0%
	NEURO,RENAL	2.0%
	NEURO, RENAL, CVD	2.0%

Fig. 9. Complaints suggestive of

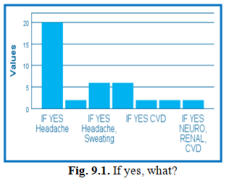

Fig. 9.1. If yes, what?

Frequency	Rarely	20.0%
	Monthly	20.0%
	Weekly	34.0%
	Daily	26.0%
Control	No	34.0%
	Yes	66.0%

Fig. 10. Frequency & Control.

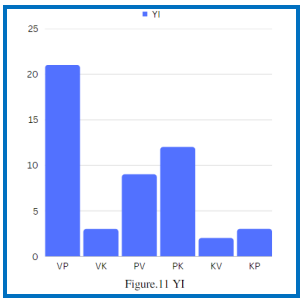

Figure.11 YI

Among 50 hypertensive patients, 21 (42%) of them belong to *vaathapitha thegi,* 12 (24%) are *pithakabha thegi,* 9 (18%) are *pithavaatha thegi,* 3 (6%) are *vaathakabha and kabhapitha thegi* respectively. 2(4%) of 50 belong to *kabhavaatha thegi.*

Data Analysis. The data are entered into SPSS.2019 and all 11 variables are analyzed for frequencies, descriptive statistics and depicted graphically (Fig. 2-11). Then, two variables namely, Yaakai Ilakanam (YI) and Control of blood pressure are subjected to group statistics (Fig. 12) and independent t test with *vaathapitham and Kabhapitham* as grouping variables (Fig. 12.1).

	Control	N	Mean	Std. Deviation	Std. Error Mean
YI	No	17	1.94	1.391	.337
	Yes	33	2.94	1.619	.282

Fig. 12. Group statistics.

Independent Samples Test

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
	-2.162	48	.036	-.998	.462	-1.927	-.070
	-2.271	37.101	.029	-.998	.440	-1.889	-.108

Fig. 12.1. Independent t test.

Considering that the means of two populations equal as null hypothesis, the independent t test is run on YI and control with *vaathapitham and kabhampitham* as grouping variables. As shown in Fig. 12.1, the p value is 0.036 (which is less than 0.05) and the null hypothesis is rejected. The difference between two is statistically significant and the two population means are not equal.

			BMI	HtnTYPE	Chronicity	Control	YI	Regularity
Spearman's rho	BMI	Correlation Coefficient	1.000	.113	-.075	-.109	.326*	.038
		Sig. (2-tailed)	.	.436	.604	.449	.021	.791
		N	50	50	50	50	50	50
	HtnTYPE	Correlation Coefficient	.113	1.000	.321*	-.077	.158	-.127
		Sig. (2-tailed)	.436	.	.023	.593	.274	.378
		N	50	50	50	50	50	50
	YI	Correlation Coefficient	.326*	.158	.244	.307*	1.000	.276
		Sig. (2-tailed)	.021	.274	.088	.030	.	.052
		N	50	50	50	50	50	50
	Regularity	Correlation Coefficient	.038	-.127	.020	.608**	.276	1.000
		Sig. (2-tailed)	.791	.378	.893	.000	.052	.

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Fig. 13. Spearman's correlation.

About 5 variables are checked for correlation using spearman's correlation (considering them as non-parametric data). The result shows that the correlation between YI and BMI is statistically significant at the 0.05 level (2-tailed); YI and control of BP correlation is statistically significant at 0.05 level (2-tailed). The corelation of Regularity of medicine intake and the control of blood pressure is statistically significant at the 0.05 level (2-tailed); the correlation between type of hypertension and history of hypertension is statistically significant at the 0.01 level (2-tailed).

DISCUSSION

In Siddha classical text *SATHAGANAADI,* the characteristics of *vaathapitha thegi* has a liking for pungent and astringent tastes which maybe a promising behavioral intervention for increasing blood pressure (Reijm *et al.,* 2016) and an unstrained temper (Shehata, 2010) which is a modifiable risk for hypertension. In *pithavaatha thegi* which forms about 18% of the total population, the texts state that they tend to have liking for sour and pungent tastes. The control of blood pressure among the hypertensive patients is screened and there is significant association between Yaakai ilakanam and control. Among 21 *vaathapitha thegi,* 11 (52%) doesn't have their blood pressure under control even though about 6 (55%) of the patients take their medications regularly with daily/weekly checkup. Whilst in *kabhavaatha, kabhapitha and vaathakabha thegi* (considering the sum of 3 categories which is 8 (16%)), about 7 (87.5%) of them have their BP under control with regular medication and weekly/monthly checkup. These association elicits that there might be constitutional attributes related to unavailing treatments and dissatisfied prognosis.

CONCLUSION

This case series concluded that the most common yaakai ilakanam among hypertensive patients are *vaathapitham* (42%) which can be considered as the most prone body constitution for hypertension. Furthermore, *pithavaatham* (18%) *and pithakabha thegi* (24%) are also present in considerable percentage among the total sample population. The yaakai ilakanam of hypertensive patients seem to have effect on the control of their BP. Moreover, studies on yaakai ilakanam and their association with various risk factors will strengthen the path to individual medicine.

Limitations of the Study. This is a case series and so only a limited population is observed. Subjective questions and assessment based solely on patient's response might alter the results.

FUTURE SCOPE

A cross-sectional study with large sample population can elicit very accurate and certain results. Yaakai ilakanam is a progressive genomic science that can open many doors for siddha system of medicine. Involving AI (AI for physical and physiological assessment; standardized psychological tests for psychological assessment) for assessment and evolving in this potential field of science is substantial. The

Change of thegi due to chronicity of disease by retrospective cohort studies, extensive documentation of characteristics of each thegi (9) adapting to every possible population are the unexplored trails in this knowledge domain.

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Conflict of Interest. None.

REFERENCES

Hemant Bhargav, Nishitha Jasti, Pooja More, Vinod Kumar, Umesh Chikkanna, Ramakrishna Kishore Kumar, Shivarama Varambally (2021). Correlation of prakriti diagnosis using Ayu Soft prakriti diagnostic tool with clinician rating in patients with psychiatric disorders, *Journal of Ayurveda and Integrative Medicine*, *12*(2), 365-368.

Kalanidhi, D. (2019). *Evaluation and Standardisation of Udal Ilakkanam Characterisation based on Siddha Concepts, Masters thesis, National Institute of Siddha, Chennai*, Kandaswamy Mudaliar V. 2nd ed. Madras: 1975. *Aaviyalikkum amudha murai churukkam (Aathma Ratchamirtha Vaithya Saara Sangragam) (in Tamil)* Palani temple *Siddha* Publications Committee; P 21,23,24,25,43.

Kannusamy Pillai C. (2014). 2nd ed. B.Rathna Nayakkar & Sons; Chennai*, Sigicha rathna deepam.*

Muthiah, K., Ganesan, K., Ponnaiah, M., Parameswaran, S., (2019). Concepts of body constitution in traditional Siddha texts: A literature review. *J Ayurveda Integr Med., 10*(2), 131-134.

Mahespriya, S. (2021). A cross-sectional study on body constitution (*Dhega ilakkanam*) in uthiravatha suronitham (Rheumatoid arthritis). *Int. J. Res. Ayurveda Pharm, 12*(5), 42-44.

Priya, A., Vetha Merlin Kumari, H. (2019). Cross sectional study on body constitution in kuraiveethana noi (hypothyroidism), *International Journal of Advanced Research (IJAR).*

Reijm, J., Dekker, S., Kranenburg, S., Engberink, R. O., & Vogt, L. (2016). Oral dose of capsaicin increases blood pressure in healthy subjects. *Journal of Hypertension*, *34*, e297.

Rotti, H., Raval, R., Anchan, S., Bellampalli, R. (2014) Determinants of prakriti, the human constitution types of Indian traditional medicine and its correlation with contemporary science. *J Ayurveda Integr Med. Jul; 5*(3), 167-75.

Shehata, M. F. (2010). A proposed study on how far anger contributes to initiating essential hypertension in canadian caucasian adults with a family history of hypertension. *Clin Med Insights Cardiol. Feb 22,* 4. 9-13.

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