

**THE STUDY ON CONCEPT OF LOKAPURUSHA SAMYA W.S.R TO EFFECT OF SEASONAL CHANGES IN BIOLOGICAL PARAMETERS IN PRE-HYPERTENSION.**Meghna Mandal<sup>1</sup>, Partha Biswas<sup>2</sup>

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**ABSTRACT**

**Background** -Time is running, and lives are also. It is impossible to avoid changes in time, but measurement is possible through seasonal division. Seasonal changes also affect lives and are reflected in biochemical parameters—the relation between them and their effect on human physiology observed under the heading Lokapurusha Samya.

**Aim & objective-** to find out the classical concept of lokapurusha samya with reference to the effect of seasonal changes in biological parameters in a healthy individual.

**Material & Method** – Randomly, 110 subjects were selected from the OPD of I.P.G.A.E & R at S.V.S.P Hospital, Kolkata, West Bengal, and subjects were divided into two groups. Healthy control (N=60) and patients with prehypertension (N=50)

**Conclusion**—This study concludes that lifestyle modification, dietary restriction, and an additional regime of food habits mentioned in ancient classics under Ritucharya should be encouraged as soon as possible in individuals with a prehypertensive state.

**Keywords:** Lokapurushasamya, Tridosha, Agni, Ritu, Adanakala, Visargakala

## INTRODUCTION

*Loka Purusha Samya* is a fundamental concept in Ayurveda that emphasises the interconnectedness of the individual with the universe. It represents the principle of harmony and balance between the microcosm (the individual) and the macrocosm (the universe). According to Ayurveda, well-being and good health are achieved when there is a harmonious alignment between the individual's body, mind, and spirit with the natural rhythms and elements of the universe. This balance can be achieved through proper diet, lifestyle, and therapeutic interventions, leading to optimal health and vitality.

Ayurveda, the ancient holistic system of medicine, holds profound wisdom that goes beyond the mere treatment of physical ailments. It perceives humans as an integral part of the universe, intrinsically interconnected with cosmic rhythms and natural elements. At the core of this timeless philosophy lies the concept of "*Loka Purusha Samya*" a fundamental principle that highlights the harmonious relationship between the individual (*Purusha*) and the cosmos (*Loka*).

In Sanskrit, "*Loka*" translates to "world" or "cosmos," while "*Purusha*" refers to the individual consciousness, encompassing both the physical body and the subtle mind. *Loka Purusha Samya* encapsulates the idea that the well-being and health of an individual are deeply intertwined with the state of the universe. Just as the cosmos is composed of the five fundamental elements – Earth, Water, Fire, Air, and Ether – so is the human body, and maintaining equilibrium between them is essential for optimal health.

The ancient sages of Ayurveda observed the rhythms and patterns in nature and recognised that the same rhythms are reflected within the human body. Seasons, time of day, lunar cycles, and planetary movements influence the body and mind, and an understanding of these cosmic influences can help maintain health and prevent illness.

In this holistic approach, each individual is considered unique, with their specific constitution or "*Prakriti*," determined by the dominance of certain elements. This

constitution influences physical characteristics, mental tendencies, and susceptibility to imbalances. By understanding one's *Prakriti*, Ayurveda provides personalised guidance for lifestyle choices, diet, and therapeutic interventions to restore and preserve balance.

The pursuit of *Loka Purusha Samya* involves living in harmony with nature, aligning daily routines with natural cycles, and making conscious choices that support physical, mental, and spiritual well-being. Ayurveda's emphasis on preventive healthcare and the promotion of balance helps individuals not only alleviate symptoms but also empowers them to lead a life of vitality and longevity.

In this age of rapid technological advancements, Ayurveda's wisdom on *Loka Purusha Samya* is a timeless reminder of the delicate interconnectedness between the individual and the cosmos. It offers a profound path towards holistic health, inner harmony, and a deeper connection with the universe.

## MATERIAL AND METHODS

**Study design:** It was an open, simple, random clinical study with a 110-sample size among healthy controls (N=60) and patients with prehypertension (N=50). Blood pressure and other biochemical parameters (BP, FBS, PPBS, BMI, lipid profile, Serum Urea, Serum Creatine, and body weight) were recorded twice in a predefined season. All the patients were selected from the OPD of I.P.G.A.E &R at S.V.S.P Hospital, Kolkata.

**Study duration:** 01 year

**Statistical analysis:** Data expressed as mean +/- SE. The application of the student t-test calculated the group. The value of BP and other Biochemical parameters was correlated in different seasons using a correlation coefficient.  $P < 0.05$  is considered significant.

## OBSERVATION AND RESULTS

### Demographical profile

Table No. 1: Distribution according to age group

Sl. No.	Age Groups (Years)	No. of Patient	Percentage (%)
1	40-45	10	16.67
2	46-50	22	36.67
3	51-55	15	25
4	56-60	13	21.67
	Total	60	100

Table No. 2: Distribution according to sex

Sl. No.	Sex	No.	Percentage
1	Male	25	41.67
2	Female	35	58.33
	Total	60	100

Table No. 3: Distribution according to Habitat

Sl. No.	Habitat	No.	Percentage
1	Urban	42	70
2	Rural	18	30
	Total	60	100

Table No. 4: Distribution according to Religion

Sl. No.	Religion	No.	Percentage
1	Hinduism	22	36.67
2	Islam	35	58.33
3	Christian	3	5
	Total	60	100

Table No. 5: Distribution according to Addiction

Sl. No.	Addiction	No.	Percentage
1	Smoking	22	36.67
2	Alcohol	4	6.67
3	Tobacco	24	40
4	Non-addicted	10	16.67
	Total	60	100

Table No. 6: Distribution according to family history of pre-hypertension.

Sl. No.	Family History	No.	Percentage
1	With pre-hypertension	30	50
2	Without pre-hypertension	20	33.33
3	Unknown	10	16.67

	Total	60	100
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Table No. 7: Distribution according to economic status

Sl. No.	Economic Status	No.	Percentage
1	High	22	36.67
2	Medium	35	58.33
3	Low	3	5
	Total	60	100

Table No. 8: Distribution according to marital status.

Sl. No.	Type	Number	Percentage
1	Married	45	75
2	Unmarried	5	8.33
3	Widow/Widower	10	16.67
	Total	60	100

Table No. 9: Distribution according to occupational status

Sl. No.	Occupation	No.	Percentage
1	Business	22	36.67
2	Service Holder	4	6.67
3	Unemployed	24	40
4	Labour	10	16.67
	Total	60	100

Table No. 10: Distribution according to educational Status

Sl. No.	Educational Status	No.	Percentage
1	Primary	15	25
2	Secondary	20	33.33
3	Graduate	20	33.33
4	Uneducated	5	8.33
	Total	60	100

Table No. 11: SEASONAL VARIATION OF DIFFERENT PHYSICAL PARAMETERS

PARAMETERS	RITU	1 <sup>ST</sup> MONTH (MEAN ± SE)	2 <sup>ND</sup> MONTH (MEAN ± SE)
<b>BLOOD PRESSURE (MEAN)</b>	<b>VARSHA</b>	67.1 ± 1.49	69.01 ± 1.50
	<b>SARATA</b>	67.90 ± 1.50	65.29 ± 1.52
	<b>HEMANTA</b>	68.10 ± 1.42	68.29 ± 1.41
<b>BODY MASS INDEX</b>	<b>VARSHA</b>	24.99 ± 0.35	25.62 ± 0.34
	<b>SARATA</b>	25.67 ± 0.33	27.39 ± 0.36
	<b>HEMANTA</b>	26.01 ± 0.36	24.89 ± 0.37

Table no 12: SEASONAL VARIATION OF DIFFERENT SEROLOGICAL PARAMETERS

PARAMETERS	RITU	1 <sup>ST</sup> MONTH (MEAN ± SE)	2 <sup>ND</sup> MONTH (MEAN ± SE)
<b>FASTING BLOOD SUGAR</b>	<b>VARSHA</b>	120.05 ± 2.21	121.80 ± 2.29
	<b>SARATA</b>	110.34 ± 2.49	118.10 ± 2.40
	<b>HEMANTA</b>	119.50 ± 1.01	106.42 ± 1.32

<b>POST PRANDIAL BLOOD SUGAR</b>	<b>VARSHA</b>	134.24 ± 0.76	133.51 ± 1.11
	<b>SARATA</b>	136.74 ± 1.12	133.82 ± 1.25
	<b>HEMANTA</b>	137.02 ± 1.34	130.81 ± 1.19
<b>SERUM UREA</b>	<b>VARSHA</b>	12.59 ± 0.54	13.54 ± 0.58
	<b>SARATA</b>	13.79 ± 0.49	16.01 ± 0.48
	<b>HEMANTA</b>	15.00 ± 0.54	15.76 ± 0.47
<b>SERUM CREATININE</b>	<b>VARSHA</b>	0.81 ± 0.02	1.11 ± 0.15
	<b>SARATA</b>	0.86 ± 0.02	0.94 ± 0.01
	<b>HEMANTA</b>	0.90 ± 0.02	0.87 ± 0.02

Table no 13: SEASONAL VARIATION OF DIFFERENT SEROLOGICAL PARAMETERS (LIPID PROFILE)

PARAMETERS	RITU	1 <sup>ST</sup> MONTH (MEAN ± SE)	2 <sup>ND</sup> MONTH (MEAN ± SE)
<b>LOW-DENSITY LIPOPROTEIN</b>	<b>VARSHA</b>	117.59 ± 2.22	112.50 ± 2.27
	<b>SARATA</b>	120.64 ± 1.50	113.84 ± 1.69
	<b>HEMANTA</b>	117.93 ± 1.30	116.12 ± 1.20
<b>VERY LOW-DENSITY LIPO PROTEIN</b>	<b>VARSHA</b>	13.91 ± 0.75	16.40 ± 0.77
	<b>SARATA</b>	15.93 ± 0.68	17.46 ± 0.64
	<b>HEMANTA</b>	21.14 ± 0.66	17.97 ± 0.61
<b>HIGH-DENSITY LIPO-PROTEIN</b>	<b>VARSHA</b>	60.78 ± 1.07	62.89 ± 1.00
	<b>SARATA</b>	60.03 ± 0.90	57.82 ± 1.00
	<b>HEMANTA</b>	56.94 ± 0.92	58.01 ± 0.99
<b>TOTAL CHOLESTEROL</b>	<b>VARSHA</b>	160.12 ± 2.00	164.83 ± 1.83
	<b>SARATA</b>	162.86 ± 2.01	168.10 ± 2.09
	<b>HEMANTA</b>	155.29 ± 2.89	162.94 ± 1.66
<b>TRIGLYCERIDE</b>	<b>VARSHA</b>	122.19 ± 3.02	128.29 ± 2.56
	<b>SARATA</b>	125.09 ± 3.12	129.01 ± 2.69
	<b>HEMANTA</b>	128.04 ± 2.92	120.01 ± 2.61

## DISCUSSION

The concept of *Tridosha*, involving the three dosas of vata, pitta, and *kapha*, is a central doctrine of Ayurved. The ancient text mentions numerous properties of dosas that are affected by seasonal variation based on their internal biological clock.

The concept of *Lokapurusha samaya* in Ayurved recognised the understanding of a biological clock endogenously generated and entrained by external signals. Ayurved recognises that the environment and humans constantly interact with each other and are influenced by mutual relationships.

The biological clock (Internal clock of the human body) regulates biorhythm, the day and night cycle of physiological, biochemical, and behavioural activities.

It is well documented that our internal body clock is also affected by different Ritus (seasons)

Seasonal changes in atmospheric temperature, sunlight, and environmental pressure may play a role in the disease process's etiopathogenesis, prevalence, and severity. All the human body's biological, physical, and psychological components change with seasonal variation. Almost all cells in animal health have self-sustained clocks entrained by environmental signals. Recent progress in genetic research has included identifying clock genes whose disruption causes metabolic abnormalities like diabetes, hypertension, obesity, etc. Seasonal variations can affect our lifestyle and medications and negatively impact our body's ability to produce and use insulin.

Apart from stress, illness, and infection, seasonal variation is also known to cause significant fluctuations

in blood sugar levels. First, heat and high temperatures affect the body's metabolism. Due to perspiration in the summer season, the body tends to lose fluids, which can cause dehydration.

Blood lipid variations during the seasons might contribute to seasonal alterations in the mortality and morbidity of cardiovascular diseases.

Some previous findings have indicated that total serum cholesterol levels are higher in winter than summer. Our present study found that the difference could be higher, which may be due to the maximum daytime temperature during the summer period.

From the mechanical point of view, seasonal variation in lipid profiles might be explained by seasonal variations such as hemodilution during summer and hemoconcentration in winter, as well as changes in dietary patterns and physical activities between different seasons. It was reported in several studies that the annual air temperature fluctuation might be an essential

mechanism of the seasonal changes of lipid profiles. Glucose levels are more likely to be higher in the winter and spring than in summer.

Various research studies showed that fasting blood sugar is usually higher in winter than summer. Such seasonal alteration might be due to cold air temperature, which increases activation of the sympathetic nerve and secretion of catecholamine.

The Ritu is divided based on '*ritulakshan*' (*sita, Usna, Varsha*) [1], and on that basis, the ritu or seasons are six in number: *shisira, vasanta, Krishna, Varsha, sarat, and Hemanta*. There are another division of ritu i.e. *adana kala* and *visarga kala*. I have taken all three consequent seasons, including *visarga kala* or '*dakshinayan*' [1] '. The relation between *dosha* and Ritu, according to our classic, is as follows [2]

SEASONS	→			
CONDITIONS	↓			
<b>Chaya (accumulation)</b>		<i>Grishma</i>	<i>Varsha</i>	<i>Sarata</i>
<b>Prakopa (aggravation)</b>		<i>Varsha</i>	<i>Sarata</i>	<i>Hemanta</i>
<b>Prashama (alleviation)</b>		<i>Shisira</i>	<i>Vasanta</i>	<i>Grishma</i>

*Varsha ritu* is the starting of *visarga kala*. The body becomes '*glaniyukta*' [3], and there is '*agnimandya*' in this season [4]. Due to '*kalaswabhava*' [5], there is '*amlapaka*' of water and medicines [4]. There is *amla rasa pradhana*, and the body's strength diminishes [6]. In this *varsha ritu*, there is '*chaya*' (accumulation) of *pitta dosha* and '*prakopa*' (aggravation) of *vata dosha* [2]

We have found that the mean body weight change in *Varsha ritu* has not significantly changed. It may be due to the no. of individuals taken.

The change in mean body weight is significant in *Sarat Ritu* and *Hemanta Ritu*, increasing daily. This is as expected because '*agnibala*' is rising in *visarga kala*

daily [4]. So, food intake is growing, and digestion and assimilation are excellent currently.

The mean blood pressure in the second month of the *Varsha ritu* is more significant than that in the first month, and this may be due to the aggravation of *vayu* in this ritu [2].

In *Sarat ritu*, the change in mean blood pressure is significant from the first month to the second month. It is less in the first month compared to the second month, but *Vayu* gets '*prasamita*' in *sarat ritu* [2]. It can be concluded that due to inadequate *ritucharya*, the results become unexpected.

The mean blood pressure in the second month of *Hemanta* is less than that of the first month. This is an expected outcome because, in *Hemanta ritu*, there is

increased Agni Bala [4], so there is no 'aama' (unexpected indigested material) to obstruct the channel. No channel obstruction is further produced to increase the mean blood pressure. Instead, the obstructed channels get cleared, and the blood pressure decreases.

In *Varsha Ritu*, the blood sugar in the first month is lower than 2<sup>nd</sup> the month. That is the expected outcome because *Agni Bala* of *Varsha* becomes 'kshina' due to 'meghanishyandan' and it is 'vata sleshma karak' and kshina Agni Bala leads to 'vatadi tridosha prakopa' [6]

In *Sarat ritu*, accumulated pitta becomes aggravated. The blood glucose (fasting) level in the first month of *Sarat ritu* is lower than in the second month. As pitta becomes 'prakupita' (aggravated) [2], increased blood sugar is the expected outcome because we know that blood sugar is also a metabolic product, and pitta and metabolism are related.

In *Hemanta ritu*, *Agni Bala* is at its peak [4] as it is the final month of 'visarga kala'. As a result, the blood sugar of the second month is lower than that of the first month.

The explanation mentioned above is also applicable in cases of change in postprandial blood sugar in *Varsha*, *sarat*, and *Hemanta ritu*.

Though *Varsha* is the starting of 'visarga kala', the *Agni Bala* becomes 'kshina'. 'Bhu vaspā', which is 'tridoshakara' due to 'prabhava', 'amlapaka' of water results in more 'kshina agnibala' [4]]. That is why urea increases more in the second month of *Varsha* than in the first.

Serum urea is the metabolic product. In *Sarat ritu*, accumulated pitta becomes aggravated, and pitta is closely related to metabolism. So, aggravated pitta results in disturbed metabolism and increased serum urea in the second month of *Sarat ritu* compared with the first month.

*Hemanta ritu* is the final month of *visarga kala* [1]. *Agni* becomes highly powerful. *Agni-pitta* and metabolism are closely interrelated. So, the metabolic product urea becomes lower gradually in *hemanta ritu*.

The explanation mentioned above is also applicable in the case of a change in serum creatinine in *Varsha*, *sarat*, and *Hemanta ritu*.

Low-density lipoprotein in the first month of *varsha ritu* is lower than in the 2<sup>nd</sup> month. It may be the effect of 'kshina agnibala' and 'kalaprabhava' of *varsha ritu* [3], but the change is not significant ( $P > 0.05$ ).

Due to powerful *agni bala* [4], metabolism is very powerful in *Hemanta Ritu*. No unwanted metabolic product is produced if the *ritucharya* is followed properly. So, though in the first month of *hemanta*, the very low-density lipoprotein becomes increased due to not maintaining *ritucharya* properly, as time passes, it becomes lower, and the change is significant.

The low-density lipoprotein level in usually controlled participants is significantly changed only in *sarat ritu*. It may be due to aggravated pitta's effect on metabolism.

High-density lipoprotein is a good lipid for health. We know that *agni* is related to the body's metabolism. As *visarga kala* proceeds, the *agni Bala* becomes much more robust and stays at its peak in the last month of *Hemanta ritu* [4]. As a result, HDL increased daily in the consequent three *ritu* as *agni* became much more powerful daily.

Triglyceride is related to 'meda' in *Ayurveda*. Like other metabolisms, 'meda vipaka' (fat metabolism) is also associated with *agni*. In *Barsha, ritu agni* becomes kshina, so it affects the meda. So, triglyceride in the second month of *Barsha Ritu* is higher than in the first month and changes significantly.

In *Sarata ritu*, the pitta becomes aggravated [2], which was accumulated in *Varsha ritu*. Pitta and *Agni* are interrelated ('ashray-asrayi bhava'). So, *Agni* becomes disturbed due to 'kala prabhava'. As a result, the triglyceride of the second month of *Sarat* is also higher than the first month, though the change is not statistically significant.

As time passes, *Agni* becomes very powerful in *Hemanta*, reflected in serum triglyceride levels and the 'loka purusha samya Vada'. For that reason, the triglyceride of the second month of *hemanta* is lower than the first month, and the change is statistically significant.

The previous result is just the same for the total cholesterol level.

## CONCLUSION

*Loka Purusha Samya*, or the concept of cosmic correlation in Ayurveda, is deeply rooted in the belief that every individual is an integral part of the universe, and their well-being is intricately linked to the harmony of the cosmos. Ayurveda views the human body as a microcosm, mirroring the elements and energies present in the macrocosm.

According to this principle, five elements (*Pancha Mahabhutas*)—Earth, Water, Fire, Air, and Ether—form the basis of all creation, including the human body. These elements combine to create three primary *doshas* or energies—*Vata*, *Pitta*, and *Kapha*—which govern various physiological and psychological functions.

When these *doshas* are balanced, an individual experiences good health, whereas imbalances lead to illnesses. Ayurvedic practitioners aim to restore balance through personalised treatments that consider a person's unique constitution (*Prakriti*) and the current state of their *doshas* (*Vikriti*).

Furthermore, *Loka Purusha Samya* guides lifestyle recommendations, dietary choices, and daily routines. Ayurveda advises aligning daily activities with the rhythms of nature, like waking up with the sunrise, eating seasonal and locally sourced foods, and engaging in mindful practices such as yoga and meditation.

In conclusion, *Loka Purusha Samya* is a profound concept in Ayurveda, reminding us of our interconnectedness with the universe. Recognising and respecting this cosmic correlation can optimise our health and well-being, leading to a balanced and harmonious life.

Embracing Ayurvedic principles offers a holistic approach to health, inspiring individuals to nurture themselves and their surroundings for overall wellness and vitality.

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