Conceptual analysis and revalidation of Loka-purusha-samya-siddhanta based upon evidences from contemporary sciences

Jairam K V1, Ajitha K2, Anjali sivaram3, Abhilash M4 & Hakkem Panthappulan5

1 2nd year PG Scholar, 2 Professor and HOD, 3 Associate Professor, 4 Assistant Professor, 5 Assistant Professor
Department of Kriya sharir, Government Ayurveda college, Kannur, Kerala, India

*Email: jairamkunissery@gmail.com

Abstract

Loka purusha samya states that any living body is a miniature representing the universe. Human being is just a part of this universe. The fundamental principles of Ayurveda are also evaluating the same. Charaka has defined the relationship between Loka (Nature) and Purusha (Human) as Loka-Purusha samyasiddhanta. The interaction and exchange between Loka (Nature) and Purusha (Human) continue in a natural way it has impact on human body which may be healthy or diseased state. Susruta also opines that purusha is one of most important creations of universe similar to the agni soma guna. Dosha biorhythms are an essential component of homoeostasis. we can evaluate that, alteration in the structure and function of universe plays a significant role in the etiopathogenesis of diseases in human. Pathology can be reversed to the physiological entity only by the consumption of substances available in the nature. It is quite evident that nature itself indicate the normal and abnormal phenomenon and their management. Here an attempt is made to elucidate this theory in different aspects of Ayurveda upon evidences from contemporary sciences.

Introduction

The theory of Lok purusha samya states that any living body is miniature model depicting the universe. Both of them composed of panchamahabhutha. All physical, physiological as well as behavioral characteristics are similar. 1 Ayurveda as a personalized medicine has its own means to restore health, contrary to the many other field of medical science. Ayurveda is highly curtailed in prevention of diseases in many aspects as well as its conservative management. obviously, it had paid a noticeable view point of understanding the definition of health and how the health can be preserved by simple diet and regimen. While dealing with disease pathogenesis and prognosis Ayurveda have multidimensional approach. Dasa vidha pareeksha is an important diagnostic tool and Prakriti is one among them. Ayurveda links the microcosm and macrocosm through the individual – cosmos principle known as loka-purusha-samya while dealing with purusha (individual). Ayurvedic fundamental principle can be classified as those defining the composite dealing between the macrocosm and microcosm and those defining the complex interaction of human body.

ARTICLE HISTORY

Received: 13 June 2022
Accepted: 23 June 2022
Available online
Version 1.0 : 15 August 2022
Version 2.0 : 07 March 2023

Keywords
Loka, Purusha, sidhanta, Panchamahabhuta, Dosha, biorhythm

Additional information
Peer review: Publisher thanks Sectional Editor and the other anonymous reviewers for their contribution to the peer review of this work.

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CITE THIS ARTICLE

All Kerala Govt. Ayurveda College Teacher’s Association
KERALA JOURNAL OF AYURVEDA
An International Journal of Ayurveda Specialties

https://doi.org/10.55718/kja.86
The conceptual review of loka (universe), purusha (individual), and samya (similarity) is an Ayurvedic fundamental principle which dealt with different living system in addition to health and disease. Human body is a miniature model of universe with all its composition and functions. The constituents of the cosmos and those of the little cosmos within the human being are similar, and their dealing with the environment are also same. The origin of life according to Ayurvedic fundamentals is through sankhya darsana (philosophy), explains the life is derived from Vyakta (invisible) building material; which becomes vyakta (visible) form through complex interaction of condensation as well as permutations and combination of different elements known as mahabhuta. Ahankara also plays an important role in this. From the Evidences of human perception as a subjective approach, the mahabhuta are counted to be five because the smell, taste, colour, touch and sound are perceived only by the sense faculty nose, tongue, eyes, skin, and ear respectively. There is no other means of direct perception. This basic idea and evolution of life from sankya school has become the basis of theory of panchamahabhuta.

The central dogma of Ayurvedic medicine derives this basic idea in the therapeutics and preventive protocols that mandates a personalised choice of food and drug for a desired effect of health maintenance and recovery from the diseases. The operation of this principle is quietly a hardship without perceiving the similarity between man versus universe.

Purusha is the modification of mahabhutas, thus purusha is part of the universe. Whatever material and spiritual phenomena are present in purusha, the same are contained in universe. The universe has innumerable components in the form of birds, animals etc. Purusha has also innumerable components in the form of si-ra, snayu, dhamani. Here an attempt is made to classify this theory in 4 different aspect namely,

1) Historical aspect
2) Philosophical/spiritual perspective
3) Health perspective (applied aspect)
4) Social aspect.

In this article the health aspect has been given emphasis.

Objectives

1) To enlighten the health aspect of Loka Purusha Samya Siddhanta in different fields of Ayurveda
2) To highlight the importance of this theory in Ayurveda

Materials

All Authentic Ayurvedic Texts like Bruhatrayee and Laghutrayee were used. Search engines are also used.

Methodology

Loka Purusha Saamya Siddhanta

Acharya Charaka has mentioned this Siddhanta in Sharirasthana stating that universe resembles the constituents of human body and vice-a-versa. It resembles not only normal but abnormalities too. These resemblances were observed by Acharyas and they have mentioned it at many places for diagnosis or identification of the disease which are difficult to diagnose as well treatment. This Siddhanta helps in pursuing the things in simpler manner.

Health aspects

Table 1 Rachana shareera aspects: Structural similarity

<table>
<thead>
<tr>
<th>Rachana shareera aspects: Structural similarity</th>
<th>Hair - Banyan tree</th>
<th>Cerebrosides, terpenoids, nardal, jatamansicacid, nardal - improves hair growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alveoli - Grapes</td>
<td>Polyphenols and antioxidants prevent lesions of alveoli</td>
<td></td>
</tr>
<tr>
<td>Acne - Silk cotton tree</td>
<td>Significant activity against propiobacterium acnes</td>
<td></td>
</tr>
<tr>
<td>Stomach - garlic cloves</td>
<td>Digestive and Carminative</td>
<td></td>
</tr>
</tbody>
</table>
Skin is the largest organ of the body which is visible by naked eye. Skin disease is marked by its variety and visibility. Skin disorder may result from any systemic disease and it may be helpful not only in diagnosis but also in further appropriate management and predicting the prognosis. The most important method of skin examination is direct inspection. The recent developments in the biochemistry and immunology had made the integumentary examination method more systematic, standardise, precise and more accurate. However, inspection reveals the most important diagnostic aspect in skin disease by evaluating the nature, type, distribution, colour of the lesion. However, naked-eye inspection and palpation are always the most important in acquiring information on the nature of skin lesions, including their distribution, form, color and shape. In Ayurveda, TrividhaParikshanPaddhati was described by Acharya Charaka and Sushruta i.e. Darshana, Sparshana and Prashna. By using this, DarshanaParikshanPaddhati referring Loka Purusha Samya Siddhanta can help in the diagnosis and management of skin disorders with suitable examples given below.

In roganidana and vikrutivijnana

Skin is the largest organ of the body which is visible by naked eye. Skin disease is marked by its variety and visibility. Skin disorder may result from any systemic disease and it may be helpful not only in diagnosis but also in further appropriate management and predicting the prognosis. The most important method of skin examination is direct inspection. The recent developments in the biochemistry and immunology had made the integumentary examination

<table>
<thead>
<tr>
<th>Table 2 Different skin disorders and its similarities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kapala</strong> = Lepra reaction</td>
</tr>
<tr>
<td><strong>Udumbora</strong> = Allergic vasculitis</td>
</tr>
<tr>
<td><strong>Rushyajihwa</strong> = Melanoma</td>
</tr>
<tr>
<td><strong>Kakanaka</strong> = Toxic epidermal necrolysis</td>
</tr>
<tr>
<td><strong>Pundarika</strong> = Discoid lupus erythematosis</td>
</tr>
<tr>
<td><strong>Eka kushta</strong> = Ichthyosis vulgaris</td>
</tr>
</tbody>
</table>

In Swasthavritta aspects

Janapadodhvamsa literally means destruction of communities or groups of settlements. Epidemics, endemics and pandemics outbreaks influence mankind since time immemorial. Susruta and Charaka explains these as aupasargika-roga and janapadodhvamsa respectively.

Charaka pointed out in janapadodhwamsa as vitiated vayu (air), udaka (water), desha (land) and kala (season) were vital factors responsible for diseases. Sushruta
explains this concept while discussing ritucharya (seasonal regimen) under the Maraka.[Su.Sa.SutraSthana 6/17]. In Ashtangasamgraha, janapadodhwamsavikara. We can also contribute other communicable diseases in this context. This gives an idea about the theory of loka is vitiated and purusha also vitiated.

**Rasa sastra perspectives**

Different rasa drugs are correlated with the navagraha is an example of loka purusha samya.

**Relative abundance of bio-metals in living body follows abundance of elements in earth crust is a best example of this theory**

During evolution elements which are commonly and enormously present in the earth crust seemed to be less toxic or non-toxic. For example, elements like Lead, Cadmium, Arsenic and Mercury which are seemed to be toxic without proper purification process are rarely available in the earth crust. The crustal availability of these elements are 0.08, 0.024, 0.0018 and 4 × 10^{-5} approximately in the number of atoms respectively per 10,000 atoms of silicon. During evolution of life the organisms neither utilize these elements nor turned down any mechanism to cope up with them. Gradually these elements becoming toxic to the body. At the same time relatively more available elements habituated by the human being had entered into the ecosystem through food chain and food web and shown to be less or non toxic. If we accept the theory of evolution then the cycle may progress like this.

“Poisons → Tolerable Impurities → Useful Elements → Essential Elements”

Thus, today’s poisons may be substituted to essential elements in the future by habituation.

Generally, commonly and abundantly available elements in the earth crust are seemed to be non-toxic to the body. But scarcely available are seemed to be toxic because it is not habituated by the human body.

**Dravyaguna perspective**

Ahara and oushada are made up of panchamahabhuta; Human body is also made up of panchamahabhuta. This itself elucidate the loka purusha samya.

Rasa, Guna, Veerya, Vipaka and Prabhava are the major aspects of Ayurvedic pharmacodynamics. It is works under the principles of samanyavisesha, panchamahabhuta and lokapururasamya sidhantas. All of these are interlinked by one another like beads over a string.

**Treatment aspect (kaya chikitsa perspective)**

*Kleda* is an important concept in Ayurveda that is vitiated in the diseases of mutraghata, prameha, kushta and visarpa in an ascending order. Ap dhatu is a common factor in the atmosphere which can simulate to the kleda. This is a direct epic of lokapururasamya.

As an example, for this kledahara treatment principle like chandraprabha, triphala shows good results in these diseases.

**Table 3. Ayurvedic Psychology in cognitive correction during counselling**

<table>
<thead>
<tr>
<th>Counselling – Goals</th>
<th>Counselling – Means</th>
<th>Universal phenomenon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance</td>
<td>Education and Persuasion</td>
<td>Imbibition</td>
</tr>
<tr>
<td>Internal locus of control</td>
<td>Restrictions</td>
<td>Surface tension</td>
</tr>
<tr>
<td>Feeling of oneness</td>
<td>Training and Environmt restructuring</td>
<td>Cohesion and adhesion</td>
</tr>
<tr>
<td>Cognitive refine-ment</td>
<td>Modeling and Enablement</td>
<td>Solid-Liquid-Gas Depends on availability of Energy</td>
</tr>
</tbody>
</table>

Cognition is considered as higher mental function of brain. The behaviour of an individual is determined by the underlying cognitive process. In situations of trauma or disaster the errors in cognitive process leads a person into states of mental ill health. Sociability of a person and the cohesion he maintains with the world around him, becomes a major factor in grief recovery. This principle of *Loka purusha siddhanta*— doctrine of man and universe relatedness provides the key elements necessary for building up a social capital. The cognitive correction aimed is a state of detachment and expanded self-awareness. This further reduces the incidences of grief due to transient loses in life.

**In shalakya roga**

In shalakyaroga considering sareera as loka and eye as purusha we can adopt the treatment modalities. In the treatment of diabetic retinopathy pramehachikitsa can be adopted and in glaucoma, antihypertensive drugs can be administered.

**Physiological perspectives**

**Chronobiology**

The earth’s rotation and revolution results in seasonal variation as well as day-night cycle had continuous impacts on the evolution of living organisms. Earth crust involve many
cycles such as carbon, nitrogen, oxygen and water which plays a vital role in evolution of life. Biogeochemical cycles which exchange materials among inanimate and animate components of Earth. As a result of that organism have developed biological clocks which helps successful performance of activities over the whole day. The ability of adaptation elucidates the cyclical changes and physiological harmonization in living organism. Chronobiology (the study of the biological rhythms in plants and animals) is a multidisciplinary field where biological rhythm and its relationship with day-night cycle, seasonal variation had been documented. This reveals that Ayurvedic fundamental principles can be incorporated in the field of chronobiology especially dealing with biological rhythm. The various 24-hour rhythms in human body become more evident and influence the principles of loka-purush samya.10

**Dosha biorhythm**

Biological rhythm is an important component of homoeostasis. Circadian rhythms are driven by the internal clock located in the suprachiasmatic nucleus of hypothalamus. Circadian rhythms are adaptive to the 24-h day-night cycle mostly by the time cues. Timed bright light and the melatonin produced by the pineal gland will substitute the timing of circadian rhythms and can be used to treat biological rhythm disorders. Circadian rhythm disorders either manifested as sleep disorders or manifest as other major pathology affecting the different systems of human body. Menstrual cycle irregularities as well as seasonal diseases are one among them which of greater importance.

Ayurvedic physiology (kriyasareera) explaining the doshic biorhythm a major aspect of control and coordination of body. Tridosha (vata-pitta-kapha) is the major cause for disease manifestation (disequilibrium state) as well as healthy state(equilibrium state). The dosha variation according to time, age, season and digestion is well explained in Ayurvedic physiology and is given in the following graph. This can be interlinked to the emerging chronobiology to a great extent.

**Chrono pharmacology versus Ayurvedic aushadhakaala**

The physiological entity including those influencing pharmacokinetic aspect such as drug absorption, distribution, metabolism and elimination, show significant daily variations. It includes : hepatic blood flow, glomerular filtration rate, renal plasma clearance, renal plasma flow, urinary volume and pH, heart rate, blood pressure, organ perfusion rates, acid secretion in the gastro-intestinal tract and the time of gastric emptying. Many drugs shows rhythmic variations in its pharmacokinetics and pharmacodynamics mechanism. Exploitation of this phenomenon, is of great importance in the current era together with identification of target tissue sensitivity.

The onset, progression and manifestation of diseases such as bronchial asthma, angina pectoris, myocardial infarction, cerebro-vascular accidents and ventricular tachycardia are depending upon the circadian rhythm to a certain extent. Pharmacological variations of therapeutic response of 24-hour cycle is known as chrono-pharmacology. Which have proven better result for cardio vascular active drugs like nifedipine, enalapril, verapamil and digoxin, anti-asthmetics, anticancer drugs, local anaesthetics, psychotropics, antibiotics and analgesics. Moreover, it is quite evident that dose-response can be significantly modified by the time in a day. While taking circadian time as a variable it plays a significant role in the drug pharmacokinetics as well as pharmacodynamics.

Time is considered as kala in Ayurveda which is an important aspect of loka(universe). Ayurvedic aushadhakaala which accounts for intake of medicines in different disorders is also dependent upon the time of which it is administered.
Why there is variation exist even if loka and purusha are similar?

Pharmacogenetics, Pharmacogenomics and Personalized Medicine: and scope of Ayurveda

Over the last 40 years the genetic basis of a differential response of drugs had been understood as a limited number. This knowledge enlightened the hypothesis that individualized drug therapy would be possible for many of the systemic disorders for its prevention and management. This leads to the emergence of pharmacogenomics which deal with the response of therapeutic drugs is in close vicinity of the genetic attributes of an individual. Pharmacogenetics is the study of genetic variation affect the disposition of drugs including their absorption, assimilation, excretion, transport in the body and their safety, efficacy and bioavailability. Emerging of these techniques leads to the prevention of adverse drug reaction and drug toxicity. Besides it will increase the bioavailability and make the drugs into conservative and cost-effective individualised formulations. From this dilemma Personalised medicine arises and it will improve the health care outcome as an alarming rate.

Ayurveda itself a personalised medical system which explains dashavidhapareeksha as one among the diagnostic tools of disease and therapeutic aspect are specific to the individual through its panchabouthika and tridosha theory. Further research is needed to establish Ayurvedic medicine can influence the single nucleotide polymorphism which is a major attribute in pharmacogenomics. Although loka (universe) aspects resembles the purusha (individual); genetic variation of an individual made him a different from others. So we need to widen our therapeutic approach by considering both the genetic variation as well as individual cosmos similarity (loka-purusha samya) for the prevention and management of diseases.

Conclusion

The individual and cosmos are continuum. Whatever exist in the universe, the same exist in the individual. Reciprocally, whatever constitutes the individual exist in universe. This theory can be applied in a variety of clinical scenarios for better understanding and realization of Ayurvedic concepts and practices. Above all, the physiological interpretations using the evidences from contemporary sciences open up new vistas in the diagnostic and therapeutic sectors of Ayurveda.

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