

## DIAGNOSTIC TENETS OF ANUKTA VYADHI IN AYURVEDA W.S.R. TO COVID-19

Nagdeve Pranali A<sup>1</sup>, Golghate Ravi K<sup>2</sup>, Patil Rajendra V<sup>3</sup>

<sup>1</sup>Assistant prof, Dept. of Rognidana, BSAM Sawantwadi, Maharashtra, India

<sup>2</sup>Associate prof and HOD, Dept. of Rognidana, BSAM Sawantwadi, Maharashtra, India

<sup>3</sup>Assistant prof, (Dept. of Swasthavritta), BSAM Sawantwadi, Maharashtra, India

Email: [golghateravi3@gmail.com](mailto:golghateravi3@gmail.com)

### ABSTRACT

‘Coronavirus disease 2019’ (COVID-19) is an infectious Pandemic disease caused by the most recently discovered coronavirus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. Corona viruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV)<sup>1</sup>. COVID-19 is a new disease entity for the Ayurveda which comes under *Janapadodhwnasa* (world-wide epidemic), *Opasargic vyadhi* (communicable diseases) and *Anukta vyadhi* (Undiscribed diseases). The term *Anukta* is used in the sense of unuttered, unsaid and unheard of<sup>2</sup>. In the present review article, an attempt has been made to study the ‘COVID-19’ as an *Anukta vyadhi* (undescribed disease) by the scrutiny of clinical presentation and investigation described in the available literature.

**Keywords:** COVID-19, *Janapadodhwnasa*, *anukta vyadhi*, *Ayurveda*.

### INTRODUCTION

There has been an outbreak of the COVID-19 worldwide. The outbreak started in late 2019 and developed into a global pandemic by March 2020. Coronavirus (CoV) is a large family of viruses that causes illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). Coronavirus disease is a new strain that was discovered in 2019 and has not been previously identified in humans<sup>1</sup>. Our ancient acharyas knew that as time progresses it would lead to new diseases. It is not possible to speak about everything every time. But they should be determined appropriately<sup>3</sup>. This system is

described in general. The learner should decide their specific and own application as per necessities<sup>4</sup>. But the acharyas gave certain guidelines and principles in the form of the concept of *Anukta vyadhi* to tackle such newly originated clinical conditions. Proper observation of patients is essential for the complete understanding of clinical manifestation of symptoms in order to carry out scientifically and methodically therapeutic treatment in a planned manner to get desirable outcomes.

**Aim & Objectives:** To study and elaborate the concept of an *Anukta vyadhi* ‘COVID-19’ with the help of Ayurvedic diagnostic Principles.

**Material and Methods:** Conceptual references are taken from all the modern medical textbooks, Ayurved *Samhitas* and related web sites. After studying the related concepts, an effort has been made for a conclusion which is based on review, observation and discussion.

**Review:** COVID -19 is an illness caused due to novel coronavirus 2, now called Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). It was first reported from Wuhan City, China. It was declared as a pandemic by WHO on March 11, 2020, as it has confirmed its presence in all continents except Antarctica<sup>1</sup>.

- **Epidemiology:** Globally, more than a million confirmed cases of COVID-19 have been reported. Updated case counts in English can be found on the World Health Organization and European Centre for Disease Prevention and Control websites. An interactive map highlighting confirmed cases throughout the world can be found here. Current situation is confirmed cases-1133680, confirmed deaths-62,784. There are 209 countries, areas or territories with cases (5April,2020)<sup>5</sup>.
- **Virology Of Sars-Cov-2:** Full-genome sequencing and phylogenetic analysis indicated that the coronavirus that causes COVID-19 is a beta coronavirus in the same subgenus as the severe acute respiratory syndrome (SARS) virus (as well as several bat coronaviruses), but in a different clade. The structure of the receptor-binding gene region is very similar to that of the SARS coronavirus, and the virus has been shown to use the same receptor, the angiotensin-converting enzyme 2 (ACE2), for cell entry. The Coronavirus Study Group of the International Committee on Taxonomy of Viruses has proposed that this virus be designated severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)<sup>6</sup>. SARS-CoV-2 RNA has been detected in blood and stool specimens<sup>7</sup>.
- **Mode of Transmission:** People can catch COVID-19 from others who have the virus. The disease can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales. These droplets land on objects and surfaces around the person. Other people then catch COVID-19 by

touching these objects or surfaces, then touching their eyes, nose or mouth. People can also catch COVID-19 if they breathe in droplets from a person with COVID-19 who coughs out or exhales droplets<sup>1</sup>.

- **Incubation Period:** The incubation period for COVID-19 is thought to be within 14 days following exposure, with most cases occurring approximately four to five days after exposure. Using data from 181 publicly reported, confirmed cases in China with identifiable exposure, one modeling study estimated that symptoms would develop in 2.5 percent of infected individuals within 2.2 days and in 97.5 percent of infected individuals within 11.5 days. The median incubation period in this study was 5.1 days<sup>8</sup>.
- **Pathogenesis of Covid-19:** Lung epithelial cells are the primary target of the virus. Virus enters the host cells and the binding process between the receptor-binding domain of virus spikes and the angiotensin-converting enzyme 2(ACE2) receptor takes place. Patients infected with COVID-19 have higher leukocyte numbers (TLC increased) initially and then lower counts, abnormal respiratory findings, increased levels of plasma pro-inflammatory cytokines and chemokines<sup>9</sup>.
- **Clinical Manifestation:** Pneumonia appears to be the most frequent serious manifestation of infection, characterized primarily by fever, cough, dyspnea and bilateral infiltrates on chest imaging. There are no specific clinical features that can yet reliably distinguish COVID-19 from other viral respiratory infections. In a study describing 138 patients with COVID-19 pneumonia in Wuhan, the most common clinical features at the onset of illness were.<sup>10</sup>
  - Fever in 99 percent
  - Fatigue in 70 percent
  - Dry cough in 59 percent
  - Anorexia in 40 percent
  - Myalgias in 35 percent
  - Dyspnea in 31 percent
  - Sputum production is 27 percent.
- **Spectrum of Illness Severity:** The spectrum of symptomatic infection ranges from mild to critical; most infections are not severe. Specifically, in a report from the Chinese Center for Disease Control and Prevention that included approximately 44,500

confirmed infections with an estimation of disease severity<sup>11</sup>-

1. Mild (no or mild pneumonia) was reported in 81 percent.
  2. Severe disease (e.g. with dyspnea, hypoxia, or >50 percent lung involvement on imaging within 24 to 48 hours) was reported in 14 percent.
  3. Critical disease (e.g. with respiratory failure, shock, or multiorgan dysfunction) was reported in 5 percent. The overall case fatality rate was 2.3 percent; no deaths were reported among noncritical cases.
- **Impact of Age:** Individuals of any age can acquire COVID-19 infection, although older age was associated with increased mortality, with case fatality rates of 8 and 15 percent among those aged 70 to 79 years and 80 years or older, respectively. Similar findings were reported from Italy, with case fatality rates of 12 and 20 percent among those aged 70 to 79 years and 80 years or older, respectively.<sup>12</sup>
  - **Period of Infectivity:** Interval during which an individual with COVID-19 is infectious is uncertain. The duration of viral shedding is also variable; there appears to be a wide range, which may depend on severity of illness. The median duration of viral RNA shedding from oropharyngeal specimens was 20 days (range of 8 to 37 days).<sup>13</sup>
  - **Opasargika Roga (Communicable Diseases):** *Acharya Sushruta*, one of the proponents of Ayurveda, has depicted different modes of communicable disease transmission in his classical treatise *Sushrut Samhita*. He says by physical contact (*Gasrasansparshat*), expired air (*Nishwasat*), eating with others in same plate (*Saha bhojanat*), sharing a bed (*Sahashayyashanashchapi*), using clothes, garlands, and paste (*Vastamalyanulepanat*) infectious diseases spread from person to person. These concepts are very much relevant today. Moreover, the modern texts of communicable disease epidemiology describe similar modes of disease transmission. In addition, he has also given examples of some diseases that spread through all these modes, such as different types of skin diseases (*Kuṣṭha*), pyrexia (*jwara*), pulmonary

tuberculosis (PTB) (*Shosha*), and conjunctivitis (*Netrabhishyanda*) etc.<sup>14</sup>

- **Immunity:** The first defensive response of the immune system is to recognize and bind to the viral proteins. This is a double-edged sword, because this is also the easiest way for the cell to become infected. Antibodies to the virus are induced in those who have become infected. Preliminary evidence suggests that some of these antibodies are protective, but this remains to be definitively established. Moreover, it is unknown whether all infected patients mount a protective immune response and how long any protective effect will last. As above, the FDA (US Food and Drug Administration) has approved a test that qualitatively identifies immunoglobulin IgM and IgG antibodies against SARS-CoV-2 in serum or plasma. Some evidence confirm that the presence of these antibodies reflects a protective immune response, serologic screening will be an important tool to understand population immunity and distinguish individuals who are at lower risk for reinfection.<sup>15</sup>
- **Vyadhikshamatva (Immunity according to Ayurveda):** Our actions like Eating at odd times, Emotional eating, Eating wrong food combinations, Working late hours into the night, Sleeping late, and Weak emotional capabilities leading to expressions of Anger, Continuous exposure to stressful situations, Hate, Fear, Lust, Greed etc (collectively called as '*Adharmacharana*') weaken the body's immune system. All the actions that one indulges in robs one of the vital essences of our energy called "*Ojas*" the life energy. This helps in energizing cells of our body, maintains healthy cellular intelligence and keeps our whole being in good shape, physically, mentally, emotionally and spiritually. *Ojas* is formed as a result of the well digested and assimilated food in a well-maintained metabolic heat in the body. Along with the formation of the *Rasa Dhatu* (nutrition derived from the assimilated food that helps in forming healthy Plasma to form blood). *Ojas* helps in maintaining a healthy balance of energies in the body and also builds up *Vyadhikshamatva* (immunity). By

indulging in unhealthy activities of both *Sharir* (body) and *mana*(mind), both *Ojas* and the *Rasa dhatu* get depleted as they are in short supply. The net result is the body succumbing to ailments.<sup>16</sup>

- **Janapadodhwansa-Roga (Worldwide Epidemic/Pandemic):** This part of the paragraph primarily describes the cause of communicable disease and epidemic as described in Ayurveda. *Chakrapani*, one of the critics of *acharya Charak*, describes the causation of disease and epidemic. He says that although individuals differ in physical constitution, food habits, suitability, strength, immunity, age, etc. they do get affected with disease owing to vitiation of some factors that are common to all those who inhabit in that community. These factors lead to the simultaneous manifestation of disease having the same set of symptoms among all the inhabitants leading to widespread manifestation in the community. The factors that are common to all the individuals in a community include air, water, land, and season. *Aniyata Hetu* is the evitable disastrous factors that include *Pradhnyaparadha* (loss of alertness), *Shastra prabhavaja* (war-nuclear weapons, missiles, etc., advanced weapons), *Abhishyangaja* (effects of pathogens, evil forces and unhygienic condition), and *Abhishapaja* (curse). Besides affecting the individuals, these factors also affect the entire community resulting in widespread disease causation known as *Janapadodhwansa-Rogas*.<sup>17</sup>
- **Concept of Anukta Vyadhi (Undescribed Diseases):** The word *Anukta* is derived from the root-*'vac'* with negation attached to the basic root.<sup>18</sup> Thus *Anukta* literally means unsaid and unuttered. *Acharya Charaka* has mentioned that, the diseases which are not mentioned here because of the enormous extent of names and forms, should be treated according to the consideration of *Dosha* and *dushya*. The diseases which are not mentioned here as per their names and symptoms, those *anukta vyadhi* should diagnose from the *prakopalakshana of Dosha* and they should treat according to the general principle of treatment of *Dosha*.<sup>19</sup> Due to the innumerable diseases, the one who cannot label

a disorder with some name should not feel ashamed because all disorders have no established footing by name.<sup>20</sup> In all such diseases which are not mentioned in text are innumerable. The features of the *doshas* are seen manifesting all over the body without any exception. So, their function and method of treatment are all the same.<sup>21</sup>

#### OBSERVATION

The methodology of diagnosing an unknown disease has been described in *Charaka Samhita* based on *Aptopadesha Pramana*. The key points like *Prakopanam*, *Yoni*, *Uthana*, *Atmana*, *Adhithana*, *Vedanam*, *Samsthana*, *Shabda-Sparsha-Rupa-Rasa-Gandha*, *Upadrava*, *Vridhi*, *Sihana*, *Kshaya*, *Udarka*, *Nama*, *Yoga* and *Pratikarartha Pravritti- Nivritti*<sup>22</sup> should be considered to form a concrete base to formulate suitable regimen for this disease. The composite picture about this disease can be drawn considering above-mentioned points, in the light of knowledge available in the modern medical discipline.

**Prakopanam:** The word *Prakopanam* means the *nidan* or *hetu* (etiological factors). According to *Acharya Charaka*, the factors responsible for disbalancing the state of basic trinity *Doshas*, *Dhatus* and *Malas* should be considered under this heading. As COVID-19 has evolved itself into a pandemic, affecting a large population all over the world irrespective of their physical features, dietary patterns, psychological attributes etc. *Ayurveda* considers it as a *Janapadodhwansa vikara*. *Pradhnyaparadhajanya vihara* and *Adharma karma* i.e. ignorance of respiratory etiquettes is the main *hetu* responsible for this.<sup>23-24</sup> It can be grouped under the '*Aagantuja vikaara*' with special reference to the class of '*Bhuutabhishangaja*' (microbiological etiology)<sup>25</sup> which are commonly affected by '*Bhutasanga*' (entry of SARs-CoV-2 through its droplets) and vitiates *tridoshas* in the body. In other hand due to *Adharma-charana*, *vyadhikshamatva* (immunity) becomes weak. People with weak immunity are more prone to this disease.

**Yonim:** *Yonim* denotes '*moolabhoota karana*' of a disease. In case of COVID-19 '*Agantu hetu*' (External factor) i.e. inhalation of SARS-CoV-2 is the *moolkarana*.

This inturn vitiated *Vatadi Doshas*. So here, the *Yoni* of COVID-19 is SARS- CoV- 2.

**Utthanam:** *Sannikrushta Aagantuk hetu* (external factor)–SARS-CoV-2 enters in the body and immediately lodges in the *uras* which itself is a predominant site of *kapha* and vitiates *dushyas rasa, rakta* and *mansa*. Vitiating of *tridoshas (pittolbana Kapha Vata)* is the main pathology that takes place here. *Pitta dosha* exerts a significant pathological influence on *kapha*. The *ushna guna* of *pitta*, in combination with the *sa-sneha* and *drava guna* will exert a pathological effect on *kapha*, thereby making it *a-sthira* (unstable) and *a-badha* (unbounded). *Vayu* gets *pratilom gati* along with *jatharagni* and *dhatvagni-mandhya*. *Rasvaha, raktavaha, pranavaha* and *swedovaha strotasas* are vitiating. The *dhaatupaaka*, a dysregulated host response, from the context of *sannipaata jwara* comes.<sup>25</sup> The coexisting *pitta*, even if very mild, will be causing *syandana* and *shoshana* in the chest progressively, which cannot be resisted by the body due to the already compromised *rogibala*.<sup>26</sup> This results in the rapid instability of *ojus* (immunity) leading to sepsis and eventually septic shock.

**Atmanam:** *Pratyatmalinga* of disease is known as its *Swaroopa*.<sup>27</sup> The main symptoms of COVID-19 are fever (*jwara*), tiredness (*daurbalya*), dry cough (*vataj kasa*), aches and pains (*shool*), nasal congestion and runny nose (*shwasa*), sore-throat (*kanthodhwansa*) and diarrhea (*atisara*).<sup>1</sup> In a report from china, 99% were having fever (*Jwaram*), 70% were having fatigue (*daurbalya*), 59% dry cough (*vaataj kaas*), 40% having anorexia (*aruchi*), 35% having myalgia (*angamarda*), 31% having dyspnea (*shwasa*) and 27% were having sputum production (*kaphaja kaasam*).<sup>27</sup>

**Adhishtana:** *Adhishtana* implies the main site of pathological process. In case of COVID 19, *pranavaha* and *rasavaha strotasa* evolve as the denominator for the transaction of SARS- CoV-2. The proper *adhishtana* can be suspected as *Koshta* itself, but the manifestation happens in *uras*, which itself is a predominant site of *kapha*.

**Vedanam:(Shabda, Sparsa, Rupa, Rasa, Gandha):** The word “*Vedanam*” denotes knowledge. The diagnostic methods in Ayurveda is by means of *Shabda*,

*Sparsa, Rupa, Rasa, Gandha* i.e. *Prathyaksha Pariksha* and *Anumana Pariksha* which includes the provisional diagnosis. Clinical diagnosis of COVID-19 is mainly based on epidemiological history, clinical manifestation and some auxiliary examinations such as nucleic acid detection, x-ray, CTscan, immune identification technology, enzyme linked immunosorbent assay (ELISA) and blood culture. Real time quantitative polymerase chain reaction (RT-qPCR) is the most common, effective and straightforward method for detecting pathogenic virus in the respiratory secretions and blood.<sup>29</sup>

1. **Sansthana:** *Sansthana* refers to the clinical manifestations of the disease.<sup>30</sup>

#### Clinical staging of disease-

- Stage1: *Kapha-Vata Jwara*.
  - Stage2: Already existing clinical situation gets Aggravated.
  - Stage3: due to *pitta dosha, dhaatu paaka* initiates
  - Stage4: *Dhatu paka* proceed, *shwasa* forwards as an *upadrava*.
  - Stage 5: manifestation of *sannipata jwara* and becomes fatal.
2. **Upadrava:** *Upadrava* are complications which manifest as a result of improper treatment of a disease, they may be mild or severe or an independent disease itself.
3. **Vridhhi, Sthana, Kshaya:** This implies for the aggravating, static and relieving factors of disease. In short it implies *Upashya* and *Anupashya*. The factors which result in depletion of *Dhatu*s and deterioration of *Bala* (Immunity) will enhance the disease progression.
4. **Udarka:** As mentioned by *Acharya Charaka*, *Udarkam* means the outcome of disease process.<sup>30</sup> COVID-19 is a *kashtasadhya vyadhi* (to be treated with difficulty). The predisposing factors such as old age and co-morbidities are causes of deteriorated *rogi bala* and which resulted in instability of *ojus* and fatality.
5. **Namanam:** In *Samhitas* our ancient Acharyas named the diseases according to its *Pratyatmalinga (Rupa)*, involving *Dosha* and *Dushyas (Samprapti Ghatakas)*, *Adhishtana* of the disease.

6. **Yoga:** Therapeutic targets<sup>31</sup>:

- Stage 1: *Jwara Shamana, Kapha Shamana, Vata Anulomana* and protection of *Rogi-bala*, ayurvedic immunity boosting measures.
- Stage2: *Jwara shamana, kapha shamana, vata anulomana* protection of *rogibalam*, regulation of the status of *pitta*, especially its *drava* and *ushna gunaas*. Particularly important in geriatric and those with co-morbidities, as this is the junction in which the fatal pathological processes start.
- Stage3: *Jwara shamaka*, medicines to stop *dhatu paka*, medications for bronchodilation and expectoration, protection of *rogi balam*.
- Stage4: same as above, but in a more potent and aggressive manner.
- Stage 5: needs technological support along with *aatyayika chikitsa*.

**Nivrutti- Pravrutti:** COVID-19 is a Challenging disorder for scientists. Advice to eat nutritious food, follow *Dinacharya* and *Ritucharya* explained in *Samhitas*. Favorable: - Easily digestible light food like *kanji*; *Chutney* made up of Goose berry (*Amalaki*), Onion, Curry leaf, Ginger and Turmeric; Cooked vegetables; Soup made up of Green gram. Use warm water for drinking. Take complete rest. Unfavorable: - Heavy, Spicy, oily or fried foods; Junk foods, Curd, Cool drinks, Head bath; Exercise; Mental stress; Exposure to fan/Ac. (Ministry of Ayush)

## DISCUSSION

The concept of *Anukta vyadhi* has been taken from the *Atidesha tantrayukti*, which tells us to study all concerns which are not included in Ayurved *Samhita*. The methodology of diagnosing an unknown disease has been described in *Charaka Samhita* based on *Aptopadesha Pramana*. These diagnostic tenets can be analyzed, compiled and interpreted in the light of current modern theories of epidemiology. Ayurveda summarizes the entire relevant concept in a single word as *Janapadodhwansa Rogas*. The COVID-19 is pandemic and unprecedented in several aspects and has challenged the healthcare system. The occurrence of COVID-19 which is possibly correlated with '*pittolbana kapha-vata sannipaata jwara*' as a

*janapadodhwansa-roga* in the *vasanta ritu* (spring season) points to the rapid and violent vitiation of *vayu* (air), *udaka* (water), *desh* (habitat) and *kaala* (season) due to the activities that can be earmarked as *pradhnyaparaadha*. Moreover, the predisposing factors such as old age and co-morbidities are the causes of deteriorated *rogibala* and which resulted in instability of *ojus* and fatality.

## CONCLUSION

It is the new approach in the Ayurveda research field. There is no exact correlation of COVID-19 with any type of *jwara*. But it can be correlated with *pittolbana kapha- vata sannipaata jwara*. Diagnosis of the disease can be interpreted by the application of *Charaka's* methodology given in the *Charaka Vimana Sthana 4*. These studies perceive the role of the immune system in survival. For an infection like COVID 19, which has no apparent clinical cure, natural reinforcement of the immune system may represent an oasis of hope in the desert of fear and panic. Concept of microbiological etiology in Ayurveda can be understood. Though it is an *opasargic- janpadodhwansaniy – kruchyasadhya vyadhi*, we can help the population by Ayurvedic preventive and therapeutic targets.

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