

# **Critical Review on Pathogenesis (Samprapti) and Management of COVID- 19 (Abhishangaja Jvara) According to the Ayurvedic Concepts**

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## **Abstract**

COVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) which spread rapidly all over the world at present. People with COVID-19 generally develop signs and symptoms, including mild respiratory symptoms and fever. Most people infected with COVID-19 virus have mild disease and recover. Individuals at highest risk for severe disease and death include people aged over 60 years and others with underlying conditions such as hypertension, diabetes, cardiovascular disease and chronic respiratory disease. According to the Ayurveda literature this disease is known as Abhishangaja Jvara which is originated caused by pollution of air, water, land, seasons and effects of sorcery, curses, anger of demons and sinful behavior of people. In this article, for the purpose of understanding of the Ayurvedic concepts of COVID-19 are reviewed under three phases as Stage I for Asymptomatic, Stage II for Upper airway and conducting airway response and Stage III for Hypoxia respectively. When Vayu in normal state, maintains the equilibrium of Dosha, Dhatu and Agni of the body and Prana Vata and Udana Vata are aggravated due to harm full effect of Corona Virus and then imbalance the other Pitta and Kapha doshas also indicating symptoms of fever, fatigue, headache etc. Management of COVID-19 are reviewed here according to the basic principles of Jvara (Fever) and Sannipata Jvara chikithsa which are mentioned in Ayurvedic texts and Sri Lankan traditional texts.

**Key words:** COVID -19; Abhishanga Jvara; fever; fatigue; headache; Sannipatha jvara; chikithsa.

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## 1. Introduction

A novel Corona Virus was identified as the cause of a cluster of pneumonia cases in Wuhan, a city in the Hubei Province of China, at the end of 2019. It rapidly spread, resulting in an epidemic throughout China, followed by an increasing number of cases in other countries throughout the world. Hence, the World Health Organization designated the disease COVID-19, which stands for Corona virus disease 2019 [1]. It was rapidly spread, resulting in an epidemic throughout China, followed by an increasing number of cases in other countries throughout the world [2]. Whereas, COVID-19 is defined as illness caused by a novel Corona Virus called Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) [3]. The primary mode of transmission of SARS-CoV-2 is via exposure to respiratory droplets carrying the infectious virus from close contact or droplet transmission from pre symptomatic, asymptomatic, or symptomatic individuals harboring the virus [4]. The most common symptoms of COVID-19 are fever, dry cough, fatigue, other symptoms that are less common and may affect some patients include loss of taste or smell, nasal congestion, conjunctivitis (also known as red eyes), sore throat, headache, muscle or joint pain, different types of skin rash, nausea or vomiting, diarrhea, chills or dizziness. Symptoms of severe COVID-19 disease include shortness of breath, loss of appetite, confusion, persistent pain or pressure in the chest, high temperature (above 38°C). Furthermore, other less common symptoms are irritability, confusion, reduced consciousness (sometimes associated with seizures), anxiety, depression, sleep disorders, more severe and rare neurological complications such as strokes, delirium and nerve damage [5]. In Ayurvedic opinion, epidemic diseases (Janapadodhwamsa) will be occurred due to pollution of air, water, land, seasons and effects of sorcery, curses, anger of demons, sinful behavior of people (Adharma and pranghaparadha) and moved out of the Gods from particular region who controlled the nature [6]. In such a country, people become afflicted by diseases like cough, dyspnoea, vomiting, nasal catarrh (common cold), headache, fever etc. which are not different from dosha prakruti [7]. Whereas, this Epidemic Jvara is considered as Aganthujatype of Jvara (Exogenous types of fever) which is named as Abhishangaja Jvara (possession by evil spirits or infection of micro-organism such as bacteria and Virus etc.) [8]. Subsequently, the exogenous types of fever caused by Virus and Bacteria is associated with vitiated Vata, Pitta and Kapha doshas [9].

### 1.1 Diagnosis of COVID -19 (Abhishanga Jvara)

Comparing signs and symptoms with the Abhishangaja Jvara, Vata Jvara, Vata Shleshma Jvara and Vata Shleshmolbana Sannipatha Jvara, COVID-19 is very similar to the Abhishangaja Jvara. Considering the vitiated dosha on these symptoms, This Abhishanga jvara is consist of Vata dosha and Kapha dosha predominantly. Considering its doshic involvement it is similar to Vata type Jvara at the onset, then converts in to Vata Shleshma Jvara and if it is not recovered, it will associate with thridosha which converted into the Vata Shleshmolbana Sannipata jvara (Pneumonia). It is indicating above symptoms, complications and severe stage of COVID -19 definitely. Therefore, it is concluded that Vata Shleshmolbana Sannipata jvara (Pneumonia) is a upadrava of Abhishangaja Jvara.

### 1.2 Etiopathogenesis (Nidana & Samprapthi) of COVID- 19 (Abhishangaja Jvara)

A one study done for pathogenesis of COVID-19 was divided into three phases that correspond to different

clinical stages of the disease. Stage 1 for Asymptomatic state (initial 1–2 days of infection), Stage II for Symptomatic state which is upper airway and conducting airway response (next few days) and Stage III for Hypoxia, pulmonary infiltrates and some of these will develop very severe disease [10]. Therefore, in purpose of understanding the Ayurvedic concepts of COVID -19 are reviewed according to above three phases as Stage I, Stage II and Stage III. Stage of COVID- 19 (Abhyshangaja Jvara)

#### Stage I : Asymptomatic state

According to Ayurvedic texts, Ayu is defined as the union of the physique, senses, mind and soul of person. When Vayu in its normal state, plays an important role in bringing about this union. If in a person, Vayu moves through its own channels, it is located in its own sites and it is in its natural state, then he lives for more than hundred years free from any disease. [11] Furthermore, Vayu is the Ayu, strength and sustainer of the body. It is the controller of the body and it is the foundation of the physique of the body. It is called “bala” because it constitutes the basis of bala or strength of the body. No doubt, fever also caused by aggravated Vayu [12]. The inhaled virus SARS-CoV-2 likely binds to epithelial cells in the nasal cavity and starts replicating. [13] The virus propagates and migrates down the respiratory tract along the conducting airways, and a more robust innate immune response is triggered [14]. Corona virus has ruksha, lagu and sukshma guna which similar to Vata dosha. Therefore Prana vata is aggravated due to pranavaha srothas (upper respiratory air way) are blocked by the adhesion of corona virus and it is become weak because of lack of unctuousness [15]. Initially, Prana Vata is located in head, chest, throat, tongue, mouth, nose and also location of prana. It is holding the Prana (include the mind), Agni, Soma etc. means which is their supporting base by holding up of heart. When it is aggravated manifestation of respiratory disorders like Kasa (cough), Svasha (Dyspnoea) [16]. In our body there is special bala called “Ojas” which is having properties of vyadhi bala kshamathwa (immunity) against the diseases. The essence of dhatu commencing from rasa and ending with sukra, is known as ‘Ojas’. It is a coolant property, unctuous, white in colour, cold in potency, moving, clear, soft, slimy and is the chief among the seat of life, the entire body with all its organs are pervaded by it and its absence the life also be end [17]. Therefore, it is not damaged to pranavaha srotas by the Corona Virus, because of it has full of unctuousness and coolant properties etc. of Ojas. It neutralizes the toxins of virus and not allow to replicate in the pranavaha srothas ( specially in upper respiratory tract). The persons those who have strong vyadhi bala kshamathwa (immunity) will remain Asymptomatic person and those who have weak vyadhi bala kshamathwa (low immunity) will develop symptoms of Corona disease ( Symptomatic state).

#### Stage II : Symptomatic state

When Prana vata is aggravating mildly, it is generated the headache and when it is moderate in senses organ like nose causes impairment of smelling. Then Udana Vata is also aggravating accordingly because it is also sharing the sites of Prana Vata like throat and chest [18]. Normal Vayu maintains the equilibrium of Dosha, Dhatu and Agni, received the sense objects and induces action [19]. Therefore, Kapha and Pitta dosha also mild increase locally in the nose and throat due to mild aggravation of Prana vata and Udana Vata, indicating Sore throat, Nasal congestion or Rhinorrhea associating with Kapha. Then, these increased dosha are moved to Amashaya [20]. When aggravated Prana and Udana Vata, Stimulate the mild aggravation of Samana vata accordingly in

the Stomach as well as its effects to reduce the action of Agni (Digestive fire) which is the manifestation of Ama. Subsequently Ama gets formed from the initial mixing with one another of greatly increased doshas in amashaya and vitiated them. The patient has complained of loss of strength, feeling of heaviness of the body, loss of appetite, phlegm of throat due to sama dosha [21]. According to the Shad kriya kala (concept of Pathogenesis of diseases), mild increase of above Dosha which in their circulation sites means developing upper respiratory signs like headache, Sneezing and sore throat indicates the Chaya stage. When the moderate increase of Vata and Kapha doshas in the stomach, are assured the Kopa stage [22]. This aggravated Vata, specially Samana Vata and aggravated Kapha gets mixed with Ama then combine with the Rasa Dhathu which is the first product after the transformation of food. Then, obstruct the channel of sweat as well as, suppress activity of Agni (digestive power) and extruded the heat to the exterior (skin and other tissue) and moving all over the body through the rasa vaha srothas due to combine with aggravated Vyana Vata which is situated in the heart. Thus, body heat is increasing and jvara (fever) is generated [23], indicating symptoms like headache, Fatigue, Nausea or vomiting, sneezing, joint pain, dry cough, sleep disorders, chills, Rhinorrhea, diarrhea, fainting, conjunctivitis [24] and intermittent mild fever [25]. Abhishanga Jvara caused by external factor (Corona Virus) are in the beginning independent. Subsequently, they get mixed up with the signs and symptoms of nija (endogenous) types of Jvara [26]. The Agni was extracted by Vatadi dosha can be considered as Prasara stage and getting located in the rasa vaha srothas, indicate the Sthana sramsaya stage in Shad kriya kala. At this occasion, patient develops the premonitory symptoms of fever, such as lachrymation, yawning, fatigue, restlessness, horripilation and anorexia [27]. As well as, obstruction of the sweda vaha srothas is indicate the Srothodushti lakshana as sanga and vimarga gamana (Vitiated Dosha, Agni and Ama are circulating in rasavaha srothas). Finally, when generating the fever and other associating symptoms of Abhishanga jvara can be considered as Vyakthi Stage. According to the proper treatment, Doshas which are increased in quantity become reduced and returned to their normalcy. The time required for proper processing of the Doshas depend upon the strength or weakness of the tejas (fire like agency) present in Doshas which in turn, depends on the strength or weakness of the digestive fire present in Koshta (Gastro Intestinal Tract) and also up on the degree of increase. The Doshas returning to normal, is conducive to alleviation and disappearing of the disease [28].

### Stage III : Hypoxia

If the symptoms were not cured by treatments, then the infected patients will progress to stage III disease and will develop pulmonary infiltrates and some of these will develop very severe disease. The pathological result of SARS (Severe Acute Respiratory Syndrome) and COVID-19 is diffuse alveolar damage which developing pneumonia [29]. According to the Ayurvedic texts, if great aggravation of Vatadi doshas are not subsiding due to high virulent of Corona Virus and manifestation of Ama furthermore, and progression of diminished Agni caused the continuous fever, are converted to Sannipata Jvara which is subsiding or becoming more severe [30]. In this stage, patient will be developed symptoms such as, high fever, severe cough, and shortness of breath (dyspnoea), eyes full of tears, dirty, reddish and irregular, pain in the calves, flanks, head, joints and bone, Pain in the heart, expectoration of phlegm and loss of strength [31]. Considering above moderate and severe symptoms, Abhishangaja Jvara is transformed to the Vata Shleshmolbana Sannipata Jvara (Pneumonia) which known as Shigrakari Sannipata or Shvasanaka Jvara [32]. In Vata Shleshmolbana Sannipata Jvara (Pneumonia), Vata is excessively vitiated, Kapha is moderately vitiated and pitta is slightly vitiated, symptoms appear accordingly. In this type of fever, apart from the features of individual doshas, some specific syndrome also

is reduced), colicky pain, absence of perspiration, severe drowsiness, dyspnoea [33], headache, trembling, delirium and vomiting [34]. Fever is curable when associated with low level of aggravation of Dosha and with no complications. Dyspnoea, fainting, loss of taste, vomiting, thirst, diarrhea, constipation, hiccough, cough and burning sensation all over the body are the complication of fever [35]. Vata Sleshmolbana Sannipata Jvara (Pneumonia) is indicating above complications. Therefore, it is concluded that Vata Sleshmolbana Sannipata Jvara (Pneumonia) is a upadrava ( complication) of Abhishangaja Jvara. Thus, it is in the Bheda stage of Shad kriya kala. If the Sannipata Jvara is not treated in this stage they will become incurable [36]. The heat of this fever quickly destroys the Doshas and waste (Sweda, Mutra, Purisha) and all the Dhathus (rasa, rakta etc.) after complete destruction of pure (Doshas only), or impure (Dosha mixed with dhathu and mala) in succeeding order. It continues to exist for seven, ten or twelve days, when Vata, Pitta and Kapha are predominant respectively; such periods being the limit either for termination of fever or killing of the patient [37]. Symptoms of fever located in blood are hemoptysis, burning sensation, perspiration, vomiting, giddiness, delirium, boils and thirst. when it located in muscle, indicate cramps in calves, thirst, elimination of urine and feces, internal heat, burning sensation, throwing of limbs and malaise. In fever located in fat, there are excessive perspiration, thirst, fainting, delirium, vomiting, foul odor, anorexia, malaise and intolerance. Tearing pain in bone, contraction, dyspnoea, purgation, vomiting and throwing of limbs, these are the symptoms of fever located in bone and when it is in marrow, develop feeling of darkness, hiccough, chills, vomiting, internal heat, severe dyspnoea and cutting pain in vital parts (heart). Finally, in fever located in semen, there is rigidity of penis and excessive discharge of semen leading to death [38]. In briefly, Acute fever associated with delirium, giddiness, and Asthma, causes death of patient in the 7<sup>th</sup>, 10<sup>th</sup> or 12<sup>th</sup> day according to Vata, Pitta and Kapha predominant respectively [39]. According to Paka concept, in case of sannipatha Jvara, if Dhatu paka takes place the patient will die and if Mala paka take place, the patient will survive and recovers. Dhatu paka is characterized by insomnia, rigid chest heavy or distended abdomen, heaviness of the body, loss of strength, severe pain in epigastric and umbilical areas, enteritis, high fever, severe thirst, stupor, dyspnoea, loss of taste perception and malaise. Mala paka is characterized by, if epigastric pain is not persisted, retrieval of signs and symptoms caused by doshas, feeling of lightness, reduction of body temperature, normal appetite, absence of abnormal thirst and well-functioning sensory organs [40].

### ***1.3 Sheetanga sannipatha (Septic shock)***

COVID-19 patients who suffer sepsis present an altered mental state, dyspnea, reduced urine output, faster heartrate, a weak pulse, and cold extremities, features which are also found in septic shock patients. Therefore, mentioned symptoms are likely brought on by low blood pressure and a hypercoagulation state by the direct and indirect action of SARS-CoV-2. In addition, thrombocytopenia and high lactate (serum lactate levels > 2 mmol/L) have also been observed in most of these patients, which are clinical manifestation of septic shock [39]. It is noted worthy that vasoconstriction and DIC (disseminated intravascular coagulation) are typical characteristics of septic patients, in COVID-19, specifically those related with hyper inflammation and coagulation is still a primary need to explore in order to improve prognosis and to identify new therapeutic targets [40]. In this type of fever, the temperature doesn't increase but in contrast, body

#### **1.4 Management of Abhishangaja Jvara**

##### **Stage 01 : Treatments of Asymptomatic Patients**

1. Ghrita Pana (Intake of Ghee)Pittaja prakrutika – only ghee.

Vataja prakrutika – ghee mixed with sahindava lavana.

Kaphaja prakrutika – ghee mixed with Trikatu (*Zingiber officinale*, *Piper nigrum* and *Piper longum*) and yavakshara.

15ml of ghee or medicated ghee should be taken daily empty stomach in the morning for 1 month.

*Effect:* Intake of Ghrita pana in little amount is very useful to maintain the unctuousness of the Pranavaha Srothas [44].

2. *Decoction of aromatics drugs:*

Decoction of Ela (*Elettaria cardamomum*), twak (*Cinnamomum zeylanicum*), teja patra (*Cinnamomum tamala*), namal renu and seeds (*Mesua ferrae*), karpura (*Cinnamomum camphor*), aguru (*Aquilaria malaccensis*), kunkuma (*Crocus sativus*) and lavanga (*Syzygium aromaticum*) is given 3 times per day before meal [45].

*Effect:* Tridosha hara specially vata kapha nashaka, ama pacana (digestant) Jvaragna (alleviate fever) and vata anulomana [46-47].

These drugs have excellent medicinal properties such as antiseptic carminative, antispasmodic [48] and, anti-microbial activity [49]. On the other hand, according to some Jvara (fever) caused by poisonous air (Abhishangaja Jvara), get cured by the administration of antidotes of these poisons [50].

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#### **1.5 Management of Abhishangaja Jvara (Corona Disease ) in stage II**

According to the chikithsa muladharm, first stage of fever, fasting is advised. Use of the digestants in the middle phase and medicated preparation are to be administered when the temperature starts reducing. A purgative drug is to be given after the course of fever. If the strength of dosha is less, moderate and severe,

### **1.6 1st Line of treatment at the first 1-2 days of fever**

At the first days of fever langhana (fasting) should be done , because fasting alleviates the aggravated doshas and stimulate the Agni. As a result of this, jvara subsides, the body becomes light and there is appetite[50].

1. Manda : Prepared by boiling rice and water in 1:14 ratio and decanting it when rice is well boiled. It is given adding powder of Shunti (Zingiber officinale) and Sahindawa

Effects: It has Pacana (digestant) and deepana (stimulate hunger) properties.

2. Peya: Prepared by adding red rice and water in 1:30 ratio and boiled well Shuti (Zingiber officinale) , dhanyaka (Coriandrum sativum), pippali (Piper longum ) and sahindava peyava

Effects: Nutritional digestant [51] and subsides fever, loss of appetite, headache , colic, and pain of the flanks[52].

3. Yusha ( Soup with pulses):

prepared by cooking pulses in water in 1 : 30 ratio and removed from the fire when pulses are properly softened, which slightly thicker than peya. Yusha prepared with Dhal, shunti (Zingiber officinale) and pippali (Piper longum) .

Effects: It is nourishing, easy to digest, clear the throat and useful as an expectorant[53]. 53

4. Shadanga panaya:

Patient should be given water boiled with musta (Cyperus rotundus) , parpataka (Oldenlandia corymbosa), ushira (Vetiveria zizanioides), chandana ( Santalum album), udichya (Pavonia odorata) and nagara (Zingiber officinale) After boiling, the water should be cooled before administration. One palam ( 60g) of drug should be added to 64 palam of water, and boiled till half of water remains[54].

Effects: Alleviate the fever with thirst

### **1.7 2nd Line of treatment of fever ( 2-4 days)**

Fasting, fomentation, Yavagu ( medicated gruel) and tikta rasa drugs should be given. This helps in pacana of avipakwa doshas in the first stage of fever[55].

### **1.8 Yavagu ( Gruel)**

Yavagu is prepared by boiling 4 palam of drugs adding the water in 64 palam, till remain 32 palam of water and adding 1 pata ( 240g) of rice, then well cooked in which fluid is more than solid form.

### **1.9 Vilepi ( porridge)**

Rice and water in 1:4 ratio is well cooked , till it become soft , which contain no free of fluid[56].

### **1.10 Panta**

Panchakola pantaya with bee honey – Pippili (Piper longum ) fruit, Pippali root, Chavya (Piper retrofractum) , Chitraka (Plumbago zeylanica), Nagara (Zingiber officinale)

Effects: Ama pacana ( digestant ) and Agni deepana (stimulate the hunger)

After the 6th day, having given light diet to eat , the patient should be administered decoctions which are either pacana ( stimulant of digestion) or shamana ( alleviator of doshas)[57]. On the other hand, Sama dosha which are greatly increased and going out of the body on their own accord, either in upward or downward routes, ( vomiting and purgation respectively) should not be stopped by medicine, for they produce diseases, if they are stopped. Such doshas which are going out should be ignored in the beginning ( early stage) and the patient should be given suitable foods (light food) , next ( in the second stage) they should be cooked with digestive drugs or removed out by purificatory therapies[58].

### **1.11 Churna**

a) Sudarshana churna: 5g three times a day after meal with hot water Effects: Alleviate fever[59].

b) Guduchyadi churna : 5g three times a day after meal with hot water

### **1.12 Swedana**

Expose the whole body to steam of Lime leaves (Citrus aurantiifolia) and pamburu leaves (Pamburus missionis )boiled water. Effects: Removes the obstruction of Swedavaha srothas (channels of carrying sweat) and alleviate fever[60].

### **1.13 Decoctions**

a) Nagaradi panchakaya – Nagara (Zingiber officinale), devadara (Cedrus Deodara) , dhanyaka (Coriandrum sativum), vyagri

(Solanum melongena) ,



xanthocarpum)

Effects: Ama pacana ( enhance digestant power) and alleviate fever.

b) Duralabadi decoction – Duralabha (Fagonia cretica), parpata (Oldenlandia corymbosa) , musta (Cyperus rotundus), shunti (Zingiber officinale), amruta (Tinospora cordifolia), dhanyaka (Coriandrum sativum)  
, kantakari (Solanum xanthocarpum)

Effects: Alleviate acute high fever, irrelevant talk, unconsciousness and burning sensation all over the body[61].

c) Guduchyadi decoction – Guduchi (Tinospora cordifolia), Nimba (Azadirachta indica), Dhanyaka (Coriandrum sativum), Padmaka (Prunus puddum), Rakta chandana (Pterocarpus santalinus) with sahindava lavana and Tila taila.

Effects: Alleviate fever, burning sensation, thirst, vomiting, anorexia, stimulate hunger and it is a good expectorant[62].

### **1.14 Rasa Drugs**

1. Seetarama vati 2-4 bd after meal
2. Mruthunjaya vati 02 with bee honey and thulasi juice, bd
3. Tribuvana keerti rasa 01 bd, with ginger juice

Effects: Alleviate fever, Ama pachana (digestant), and srotas shodhana (purification of channels of the body)[63].

### **2. Final treatment of Corona fever**

When dosha are pacified with fasting and digestive fire increases in the process, fever subsides, lightness of the body is felt and appetite is improved . Fluctuation of doshas is corrected by fasting, through the digestion of Ama. Fever is subsided, taste is restored and lightness of the body is achieved by fasting[64].

### **3. Administration of Emetic therapy**

If the jvara is dominated by kapha and this kapha located in the amashaya (stomach and small intestines, is in a stage of uthklesha (about to come out of its receptacles) , then it should be removed by administration of emetics in strong patients[65]. To full fill this ailment, Madanaphala churna , Pippali and Bee honey are administered. [66] Otherwise, if the patient of hiccup and asthma (dyspnoea) suffers from fever or Ama dosha, then he should be administered ruksha sweda and fasting therapy. After proper examination , such patients may also be given emetic therapy by giving saline water[67].

#### 4. Administration of Purgation

When the fever does not subside, by the therapies, then for its alleviation, virechana therapy should be administered provided the patient is not emaciated, weak and devoid of digestive power[68]. For the purpose of purgation, 10g of powder of Draksha, Haritaki (*Terminalia chebula*) and Trivruth (*Operculina turpethum*) is administered to the patient at night for three days[69]. On the other hand, Maharshi Charaka mentions that, *daivavyapasa chikitsa* is the most desired therapy for the *Jvara* caused by *shapa*, *abhichara* and *bhutabhishanga*[70].

#### 5. Treatments for Vata Sleshmolbana Sannipatajvara (Pneumonia)

According to Maharshi Charaka and Vagbhata, considering simultaneous vitiation of two doshas, and vitiation of three doshas, nature of disease, the relative aggravation of the vitiation of doshas or their equal vitiation, the disease fever should be treated with appropriate drugs keeping in view the line of treatment of each dosha. Sannipata jvara should be treated by increasing one dosha, by reducing excessively aggravated one or by correcting the sites of dosha in order, beginning with the site of dosha in order. Therefore, it should be treated beginning with the site of Kapha[71]. According to the Sri Lankan traditional medicine, in treatment of *tridoshaja* type fever, first of all, the treatments should be done for alleviating Kapha and Ama, after being reduced the Kapha dosha, should be done alleviation of pitta and Vata respectively. First it is use full of *Langana* (fasting methods), *Valuka Sweda*, *Nasya*, *Nishteevanaya* as well as *Avaleha* and *Anjana* should be administered separately. whereas, it should be done *Langhana* (light diet) to the patient during 6 days which predominant of Kapha and Vata dosha if it is Pitta dosha, done one day[72].

##### 5.1 Valuka Sweda (fomentation with Sand)

Fomentation the thoracic region of the patient by using the pottali is tied with friended sand on metal pot. This Sweda alleviate the pain, delirium, coldness, stiffness and the feeling of heaviness of the patient by sweating[73].

##### 5.2 Rechana Nasya

- a) *Nasya* by using *katphala churna* (*Myrica esculenta*), relieves the drowsiness, unconscious, delirium, and headache[74].
- b) *Kalpataru rasa*: A combination of *matulunga* (*Citrus medica*) *rasa*, *Ardra* *rasa* (*Zingiber officinale*) and three salt (*sahindava*, *sauvarchala* and *bida*) are grinded with water and use for the same. By this procedure, the clogged mucus is rooted out and pain originating from head, thorax, throat, oral cavity and flanks is subsided.

##### 5.3 Nishteevana (Expectoration)

- a) When tongue, plate and respiratory passages are vitiated by Vata and Pitta, tongue can't perceive

- b) Trikatu powder and rock salt are mixed in ginger juice and gargled frequently reaching the throat and spitted out, it removes clogged mucus from all part of upper clavicular area and relieves the heaviness, pain of the joints, fever , syncope, excess sleep and dyspnoea[75].

#### **5.4 Avaleha**

- a) Ashtanga Avaleha – It Pacifies even grave sannipata, hiccough, dyspnoea, cough and pharangitis.  
This can be used with ginger juice in case of Kapha aggravation
- b) Chaturangavaleha - This linctus pacifies dyspnoea, cough, loss of consciousness and altered taste[76].

#### **5.5 Anjana**

Seeds of shirisha (*Albizia lebbek*) , pippali (*Piper longum* ), maricha( *Piper nigrum*) and rock salt are grinded with cow's urine and applied in to eyes along with garlic (*Allium sativum*), vacha (*Acorus calamus* ) and manassila, removes drowsiness or stupor [77].

#### **5.6 Dalu Anupana**

Dalu Anupana is a traditional herbal preparation, which is currently used with a drug to enhance its effects to cure the diseases in Sri Lanka. The method of preparation is, the boluses are prepared by mixture which made of ponded tender leaves of herbal plants and seeds. The juice is extracted by steamed boluses in which hot water are added in to the bowl. 60 ml of this Dalu Anupana are taken with particular drug with adding prativapa ( the substance which are added when it is administered to the body with purpose of enhance its activity in the body furthermore) such as oils, ghee, rock salts, orange juice etc.

Eg. Buddharaja kalka with Kumburu ata adi Anupana which is prepared by using (seeds of kumburu - *Caesalpinia bonduca*, lashuna - *Allium sativum*, tuvarala - *Valeriana wallichii*, lime fruit (*Citrus aurantifolia*) and nirgundi leaves (*Vitex negundo*), as well as orange juice, bee honey and Sahindava lavana( rock salt) are added as a *prativapa* two times a day , morning and evening before meal . Effects are Ama pacana (digestant) and relieves dyspnoea, cough and chills.

#### **5.7 Decoctions**

Seetarama vati with Tikulu hingu decoction { Shunti, Pippali (*Piper longum* ), Maricha ( *Piper nigrum*), Hingu (*Ferula asafetida*), Dhanyaka (*Coriandrum sativum*)}. Effects are Ama pachana, relieves dyspnoea, cough and fever.

#### **5.8 Sankara sweda and oil massage**

Oil - Mixture of Sarshapa (*Brassica juncea*) oil, Cinnamon (*Cinnamomum verum*) oil, Kapuru oil Pottali is making by using vasa leaves (*Adhatoda vasica*), nirgundi leaves (*Vitex negundo*) and lashuna. Effect is reducing the pulmonary oedema[78]

## **6. Pathyaa Pathya**

Red rice, barley, soup of mudga, meat soup, parusha, tarkari, amalaka, dadima, draksha[79] ghee, bitter gourd, luffa, rabbish, geta thumba, Moringa, Ash plantain, sarana (*Boerhavia diffusa*), heengenda (*Portulaca oleracea*), snake gourd, mutton, chicken are suitable for COVID -19 patient[80]. During first stage of fever, one should avoid sleep during day time, bath, massage, having heavy food, sexual intercourse, anger, exposure to wind, exercise and medicine having astringent taste[81].

## **7. Discussion**

The main purpose is inhibiting the Pathogenesis (samprapthi) of COVID -19 (Abhishanga Jvara) to cure the patient and avoid the severity of the disease. According to shad kriyakala, dosha, if eliminate the Sanchaya stage, do not undergo further stages because in the successive stages they become powerful[82]. When Patients are indicating mild symptoms of COVID -19 (Abhishanga Jvara) such as headache, sneezing, sore throat and body ache before onset of fever, it will be success if administered the shodhana karma like, after applying oil to the head then it should be done vashpa sweda (snigdha sweda), kawala, nishteevana and pratimarsha nasya. As this procedure, the mild aggravated Vata and Kapha may be pacified, and pranavaha srothas may be cleared by removing malarupi kapha stained with SARS-CoV-2 to maintain the unctuousness of the pranavaha srothas. Whereas, when patients are presenting with fever which in Vyakthi stage, it should be done langhana and pachanadi karma to bring the Agni to its own site (stomach) from the shakha (Rasadi dhatu). Furthermore, if he is presented with raktha dhatu paka feature like high fever, thirst, discoloration (Cyanosis), burning sensation and delirium, indicate that he is in Sannipata Jvarastage and it is able to apply treatments for Vataashleshmolbana Sannipata Jvara which is mentioned above, while having other dietary regimens, as well as the patient should be managed by using emergency care techniques. When vitiated doshas in majja dhatu, manifest dyspnoea, severe cough and feel cold of external body and burning sensation in internal body [83] which is leading to sheetanga sannipata (Septic shock). On the other hand, dry cough and dyspnoea are manifested due to aggravation of Prana vata which already been vitiated the pranavaha srothasa. Rakta dhatu is dried up by the vitiated Vata dosha and Pitta dosha when they are located in the rakta dhatu. As a result, ojas get exceedingly reduce on account of the vitiation of dosha and dhatus. So, the patient become poor in blood and sense organ become weak [84]. Then, Prana Vata get more aggravated due to dhatu kshaya and may develop dyspnoea cause the severity of the disease. In COVID -19 patient, reading of oxygenated hemoglobin level below 94 % are considered as the sign of the severity of the disease[85]. As a solution, it should be managed the vitiation of Vata by accompanied from rakta dhatu to koshta, then it should be done Vata anulomana treatment and Pitta shamaka, combine with other Ama pachanadi treatment. It is suggested that Guduchayadi decoction with sahindava lavana and Tila taila, is the one of suitable treatment for this ailment.

## **8. Conclusion**

Corona Virus 2 (SARS-CoV-2) is a very harmful effects to our body, indicating Pranavaha srothas dushita lakshana which leads to Severe Acute Respiratory failure. Considering the samprapthi, Abhishangaja Jvara is

manifested due to aggravated Prana Vata, Udana vata and following imbalance of other Kapha and Pitta Doahas. Vata shleshmolbana Sannipata Jvara is manifested mainly in the patients those who have weak vyadhi bala ( low immunity) as a complicated ailment of this COVID -19 (Abhishangaja Jvara) which may lead to the death. Finally, Abhishangaja Jvara chikithsa and Sannipata Jvara chikithsa, which is mentioned in Ayurvedic texts, are very effective to cure this disease.

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