

PROGNOSIS OF CORONA IN MODERN MEDICINE AND IN AYURVEDA CONTEXT AS THE SYMPTOMS IT POSSESS ARE OF TAMAK SHWASA - A REVIEW ARTICLE

Inderjit Kaur*¹, Shaleen Singh² and Satyakam Rahul³

Pious Ayurveda: 508, Sector 33b, Chandigarh.

Received on: 25/05/2020

Revised on: 16/06/2020

Accepted on: 06/07/2020

*Corresponding Author

Dr. Inderjit Kaur

Pious Ayurveda: 508, Sector
33b, Chandigarh.

ABSTRACT

CORONA needs no introduction now, everyone is well aware of it. CORONA has emerged from CHINA and affected globally. It is a strong virus which is affecting a large number of people as it spreads at a very fast speed. We had forgotten the term of communicable diseases; it is reminding us the term, described in our Scriptures. As the spread is fast and it is a new type of viral infection, no medicine has been discovered yet. Main purpose of writing this article is sharing the Prognosis of CORONA with respect to Ayurveda Prognosis (Samprapti) on the basis of the symptoms appearing in patients infected with it, so that we can help in developing some medicine for it. I am taking the pathophysiology of CORONA and relating it to the terms used in ayurveda. My study reveals that all the sites affected by the Corona are the KAPHA SITES in our body, starting from the Nose, Bucal cavity, Lungs, alveoli, brain, synovial fluid and plasma. Every symptom being possessed by the CORONA patient is described in the IN CHARAK SAMHITA CHIKITSA STHAAN CHAPTER 17, PAGE NO. 516 HIKKA SHWASA CHIKITSA ADHYAA). Here I am explaining the symptoms written in CHARAK SAMHITA in relation with various symptoms being possessed by the patient infected with the corona Virus. Various stages and types of swash roga can be associated with the symptoms of CORONA from simple infection to fatal, same as symptoms of SHAWASA from simple, then yapya and then fatal. See, how the parameters described in CHARAK SAMHITA ARE SO RELEVANT EVEN TODAY that is the importance and glory of Ayurveda. We categorize CORONA Infection in the Aagantuj Vyadhi (Accidental), As it has affected everyone, all of a sudden, but there are lot of aggravating factors existing in the people which have helped in spreading of CORONA. The compromised immunity of people due to various factors which has lead to higher mortality rate. I have come to this conclusion after reading various researches on the corona and the Autopsy reports of the patients who died due to CORONA.

KEYWORDS: CORONA, IMMUNITY, VATA (Air and Space Element), PITTA (Fire and water element), KAPHA (Water Element), SHWASA ROGA, TAMAK SHWASA, KASA, SHVASA KRICHHATA, YAPPYA, ASADHYA.

INTRODUCTION

CORONA, CORONA VIRUS and COVID – 19 are the names which have been assigned to this virus. It is the more complicated form of the virus from the previous SARS and MERS of this family.

1. MERS (Middle East Respiratory Syndrome)
2. SARS (Severe Acute Respiratory Syndrome)

These viruses are members of a previously unrecognized group which the virologists suggest should be called the coronaviruses, to recall the characteristic appearance by which these viruses are identified in the electron microscope.

The word “corona” has many different meanings. But it was the sun that the virologists had in mind when they chose the name coronavirus.

As they wrote, they compared “the characteristic ‘fringe’ of projections” on the outside of the virus with the solar corona.

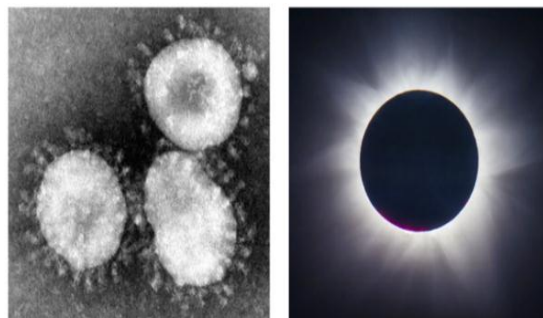


Fig. 1: Left- The virions of corona-viruses Right- Corona of the sun seen during an eclipse.

Introduction of Corona

The corona¹ virus emerged only in December last year, but within 2 months the world was dealing with a pandemic of the virus. In 82% cases symptoms are relatively mild, illness begins and end up in lungs. Remainder cases are severe or critical, typically in older or immune compromised and some people have died due to it.

Corona virus causes diseases in the mammals and the birds. Zoonotic virus is the one which gets transferred between animals and the people. When a virus circulating in the animal population infects people it's termed as spill over. It is speculated that the Covid 2019 or Corona originated in bats and was transmitted to humans, possibly with pangolins as an intermediate host. Now it is spreading from human to human as well.

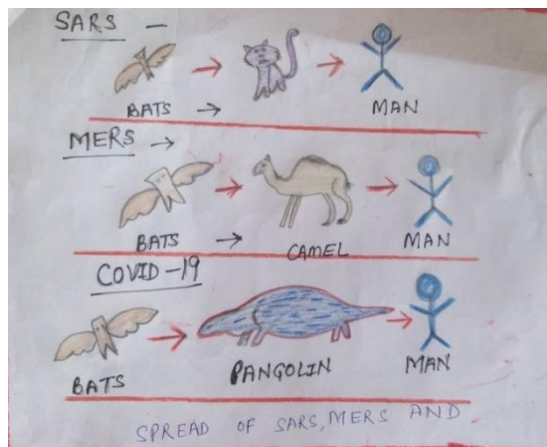


Fig. 3: Image of a healthy Lung.

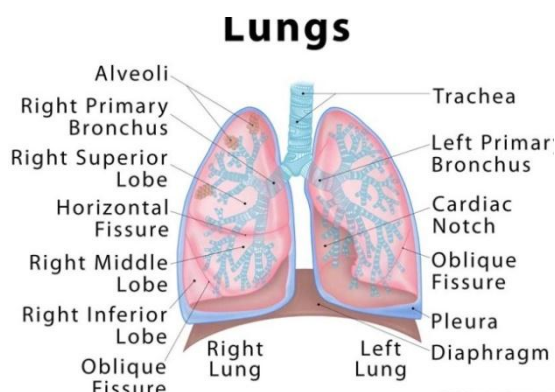


Fig. 2: Modes of Transmission of Corona-viruses.

New corona virus is a new strain that has not been previously recognised, it is a new mutated version of the virus. It has surpassed the SARS death tolls in a matter of weeks, even though the death is lower but the spread is faster.

Mode of Infection

The virus is filled with a protein, spike sticking out of the envelope that form the surface and houses a core of genetic material. Any virus which enters your body looks for cells with compatible receptors. One day they find the right receptor and enter the cells replication machinery to create copies of themselves.

The studies reveal that the COVID - 19 uses the same receptor as in SARS, found both in lungs and small intestines. The droplets from the sneezing or the mucus of the infected person enter into our body from Nose by breathing or bucal cavity if we touch our mouth with infected hands.

It travels down the trachea, some may pass to the alimentary canal as well, but the acid in the stomach is capable to destroy the Virus. Although some children have been found to be infected through the alimentary canal but the number is negligible. Then the virus passes down to the trachea and finally reaches the lungs. The virus attacks in three stages.

1. Viral replication
2. Hyper activity of immune system
3. Pulmonary destruction

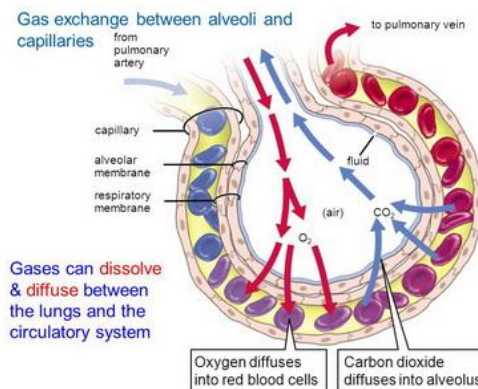


Fig. 4: Image of Alveoli with functioning.

The virus,^[2] invades the alveoli in the lungs; alveoli are the tiny air sacs in the lungs which are responsible for gas exchange: where lungs replace carbon dioxide in blood with fresh oxygen you just inhaled and keeping the lungs healthy by producing healthy mucus and keeping it lubricated. The alveoli have two types of the cells:

1. Mucus Producing cells (goblet cells): It saves lungs from drying up and protects from the pathogens
2. Ciliated cells: They propel the mucus towards exterior to clear out the debris from the Lungs.

Structure of the epithelium in the alveoli is the same as in small intestines, so we also see some cases of infections from the anal route. Ciliar cells become the host of Covid cells, the Virus invades the cells and the first of all replication starts, the virus starts making its more copies and infecting in a major way.

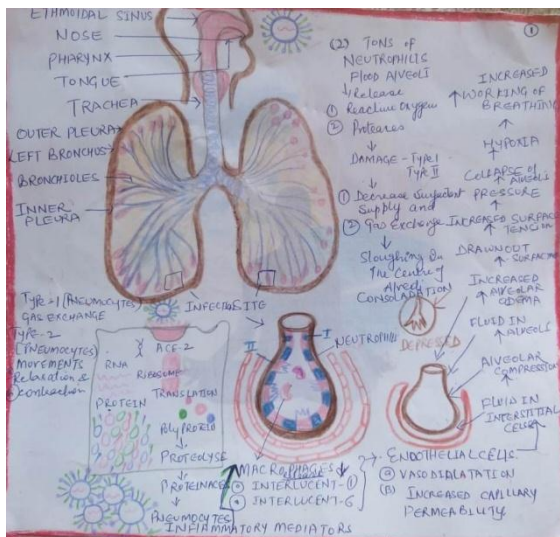


Fig. 5: Mode of Infection of Corona-virus step 1.

Normally during infections the immune system’s inflammatory process is highly regulated and is confined to infected area. In COVID – 19, due to rapid replication the immune system over reacts and results in damage to healthy tissues and more of inflammation is there.

The inflammation results in more permeable alveoli and increased permeability causes fluid to leak into the lungs and decrease lung’s ability to oxygenate blood. In severe cases lungs get flooded and cannot breathe easily. Due to it, more cells die and slough off into the lungs and clog them, worsening the pneumonia. As the damage to the lungs increase, the stage begins which is respiratory failure, leading to potentially permanent damage or death. Sometimes over reaction of immunity system disturbs Cytokines. Cystokines are the immune system’s alarm system, recruiting immune cells to the infection site. Over production of cytokines can result in a cytokine storm.

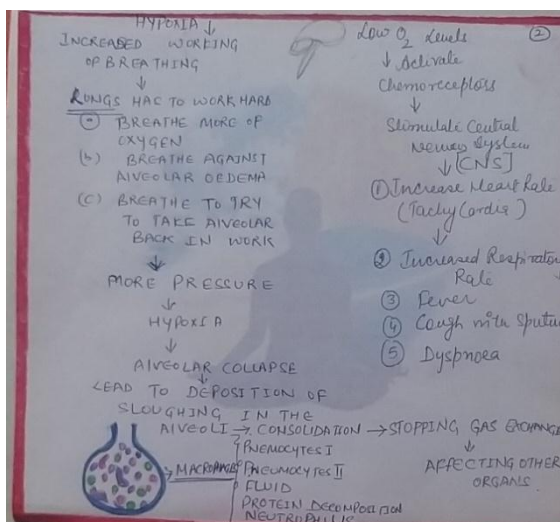


Fig. 6: Mode of Infection of Corona on alveoli - step 2.

Diseases such as covid-19 and influenza can be fatal due to an overreaction of the body’s immune system called a cytokine storm.

Cytokines^[3] are small proteins released by many different cells in the body, including those of the immune system where they coordinate the body’s response against infection and trigger inflammation. The name ‘cytokine’ is derived from the greek words for cell (cyto) and movement (kinos).



Fig. 7: How the virus involves brain, heart, immune system and kidneys step-3.

When SARS-COV-2, the virus behind the covid-19 pandemic enters the lungs, it triggers an immune response, attracting immune cells to the region to attack the virus, resulting in localised inflammation. In some patients, excessive or uncontrolled levels of cytokines are released which then activate more immune cells, resulting in hyper inflammation. Cytokine storms are a common complication not only of covid-19 and flu but of other respiratory diseases caused by Corona viruses such as SARS and MERS, they are also associated with non-infectious diseases such as multiple sclerosis and pancreatitis, indicating the compromised functioning of the Brain for releasing hormones and nervous system. Cytokines have been shown to be involved in autocrine, paracrine and endocrine signalling as immunomodulating agents. Cytokines are produced by a broad range of cells, including immune cells like macrophages, b lymphocytes, t lymphocytes and mast cells, as well as endothelial cells, fibroblasts, and various stromal cells; a given cytokine may be produced by more than one type of cell.

Cytokine storms might explain why some people have a severe reaction to Coronaviruses while others only experience mild symptoms.

Steps of effects of corona in nutshell

You breathe in virus /you touch a contaminated surface

- can touch face
- infects the cells lining your throat, airways and lungs
- generate huge numbers of new viruses that go on to infect more cells
- At this early stage, you will not be sick and some people may never develop symptoms
- Incubation period varies, but is five days on average
- Covid-19 is a mild infection for eight out of 10 people who get it have a fever and a cough (Body aches, sore throat and a headache are all possible)
- the fever is a result of your immune system responding to the infection
- it recognises the virus as a hostile invader and signals to the rest of the body that something is wrong by releasing chemicals called cytokines
- these rally the immune system, but also cause the body aches, pain and fever (sign that our body defence mechanism is in action)
- some people will eventually start coughing up sputum (a thick mucus containing dead lung cells killed by the virus)
- this stage lasts about a week - at which point most recover because their immune system has fought off the virus.
- However, some develop a more serious form of Covid-19, the disease progresses due to the immune system overreacting to the virus.
- Too much inflammation can cause collateral damage throughout the body. The virus is triggering an imbalance in the immune response, there's too much inflammation
- Inflammation of the lungs is called pneumonia.
- In pneumonia the tiny sacs start to fill with water and can eventually cause shortness of breath and difficulty breathing.
- Some people will need a ventilator to help them breathe. This stage is thought to affect around 14% of people, based on data from China.
- It is estimated around 6% of cases become critically ill. It can lead to septic shock when the blood pressure drops to dangerously low levels and organs stop working or fail completely.
- Acute respiratory distress syndrome caused by widespread inflammation in the lungs, stops the body getting enough oxygen it needs to survive.

It can stop the kidneys from cleaning the blood and damage the lining of your intestines. "

- By this point the body is starting to fail and there is a real chance of death.

Fig. 8: Steps of Prognosis by Corona.

Ayurveda Prognosis

Now let us discuss prognosis according to Ayurveda. Ayurveda works on tridosha theory, when we diagnose any ailment in Ayurveda, we talk of Vata, Pitta and Kapha.

As mentioned in CHARAK SAMHITA, when we treat a patient we take care of ten factors (Dash Vidh Pareeksha), especially place (desh), time (kaal), water (jal), Air (vayu) and nature of the person into consideration.

In CHARAK SAMHITA VIMAN STHAN (Chapter 3, Page No. 692 - JANPADODHAMASA ADHYAA), It is clearly mentioned by ACHARAYA ATREYA,^[4] that when solar eclipses, moon eclipses, fire on earth or forests and changes in the seasons are there, they forecast the signs of epidemic. In today's scenario all these changes are apparent and we can see that earth, water, air and whole environment has got polluted, they are not capable of giving us all the nutrition and healthy environment we need.

Answering the question of Agnivesha, ACHARAYA ATREYA tells that people of different prakriti, different food choices and age can be affected at the same time with the same disease as when air, water and earth get polluted,^[6] anyone can be affected. Ecology has no barriers, the affects can be more or less but they are surely there, as the air we breathe is polluted (we breathe oxygen), the water we are drinking has been polluted to

large extent, the earth growing grains, fruits and everything has been polluted.

The surroundings have been polluted from the smoke getting emitted from factories and aeroplanes. The Electromagnetic Pollution is the most dangerous pollution affecting us now a day. OSCILLATIONS AND HEAT generated from the electronic gadgets causes an increase in the AIR (VATA) AND FIRE (PITTA) ELEMENT in atmosphere and depletion of WATER (KAPHA) ELEMENT in environment. When moisture gets depleted in the environment, the universe start draining the water element from the surroundings, it may be from the human bodies even. Changing seasons and untimely rains are an example of change in atmospheric pressure, the vacuum and heat created by Vata and Pitta attracts the rain for filling up the moisture content. (Article-1 Electromagnetic pollutions).

All the changes have helped the CORONA to become pandemic from epidemic. We see CORONA VIRAL INFECTION as an Agantuj vyadhi (Accidental) and within 2 month time it became pandemic, means the whole of the universe is affected within no time. It also means whole of the universe is giving the virus a cordial environment to grow and spread. Every line written in Charak Samhita by lord Atreya ji got justified as written above. Although there is lot of climatic variation all over the countries, some are excessive cold and some are hot and some have medium climate, still we have patients all over.

The heat, dryness and pollution has disturbed all the four factors that are DESH, KAAL, VAYU AND JAL and every person is trapped in that vicious cycle. If we see around 200 countries have been affected with virus, but the mortality rate is high in the developed countries.

Structure of Corona

The corona structure show a layer of lipid membrane means CORONA know how to survive in the polluted world, it also need affection in the dry and selfish world, so chosen the place of attachment the AVLAMBHAK KAPHA (The lungs). Lungs are the main place of kapha.

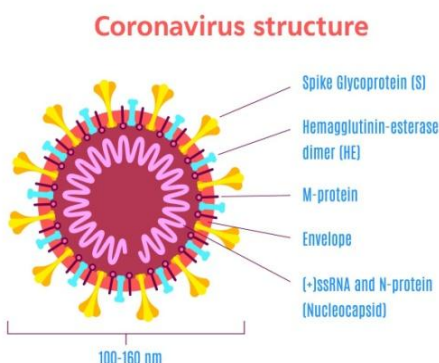


Fig. 9: Image of CORONA VIRUS.

Corona attacked all the kapha places in the body as they have become compromised or we can say they have become the places of sthansanshaya or khavaigunya due to vata and pitta prokope and depletion or shrinking of kapaha.

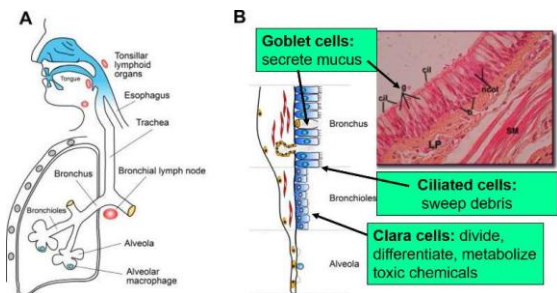


Fig. 10: Image of alveoli with functioning of two types of cells.

Another interesting thing is, the VIRUS did not attack to the MUCUS PRODUCING GOBLET CELLS, and they got attached to the CILIATED CELLS (vata site, responsible for movements or contraction and relaxation of the alveoli).

The functions of ciliated cells are:

1. Relaxing to provide more space to oxygen
2. Contracting for throwing out the infected cells or the mucus from the lungs

This is the nature opposite to the nature of corona, which invades the site (it proves that the compatibility is more in opposite nature persons or things, the negative attracts positive).

The shell of protein of corona (kapha, nutrition) has compatibility for the cilia (vata, movement).

Corona Has Affected All Sites of Kapha

If we see the mode of actions of the CORONA, it has affected all the places of the kapha in the body and the symptoms a patient possess are more likely of TAMAK SHWASA⁵ and then if complications arise can be related to other types of SWASA ROGA varying from CHINN SWASA, URDHAVA AND MAHA SWASA. Kapha Dosha has been diminished, depleted and polluted all over the Universe and hence the human body. The changes in the bodies have been developed over the years and the reasons (NIDANS) mentioned in CHARAK SAMHITA of Shwasa are prevalent in the society which have worked as aggravating factors for the virus infections. (Article – 2)

KAPHA DOSHA is Responsible for anabolism that is controls muscle growth, body strength, stability, weight and our immune system. We can say protecting the vital organs is the role of kapha in our body. The virus infects anybody who comes into contact with it by any mean.

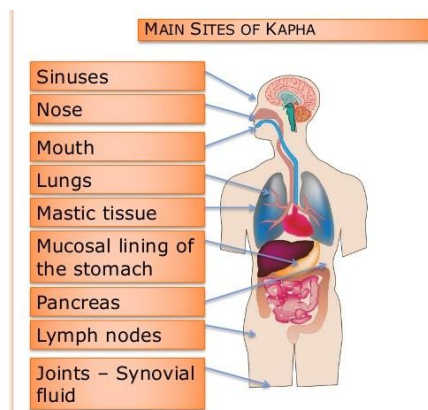


Fig. 11: Image showing places of KAPHA.

Virus enters the body from...

1. Nose while breathing or by mouth, if we touch our mouth with infected hands by mistake. (These are places of BODHAK KAPHA).
2. KLEDAK KAPHA already compromised due to UNHEALTHY LIFE STYLE AND FOODS.
3. The AVLAMBHAK KAPHA (HEART AND LUNGS) gets infected.
4. Then body defensive mechanism start working and the brain (TARPAK KAPHA) start sending signals to the sites of RBC AND WBC, the SYNOVIAL FLUID (SALESHAMIK KAPHA) gets affected.

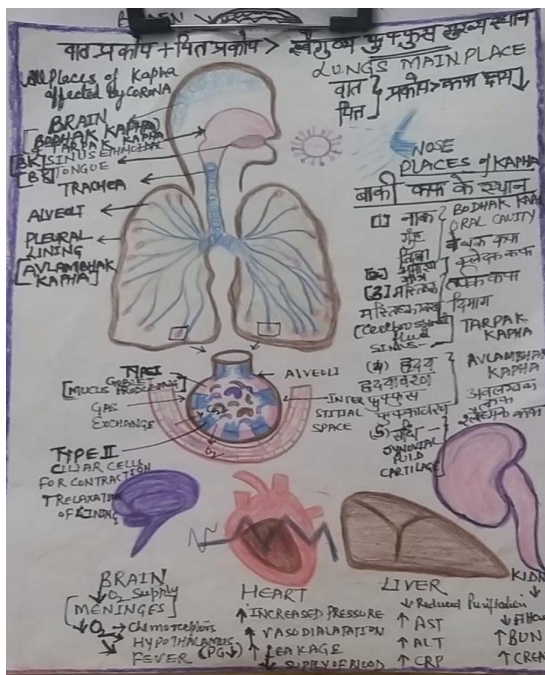


Fig. 12: Image showing places of KAPHA affected by CORONA.

The virus enters the trachea and ultimately reaches lungs. The virus can enter through the alimentary canal also but the Pachak pitta in the stomach kills the virus. We encounter with the symptoms which come from the infection of the lungs, the virus affected the mucous membrane of the lungs. Vata and Pitta has already dried the mucous of the lungs, so affecting the flexibility of the lungs that is oxygen inhalation and CO₂ exhalation. It leads to the inability of the lungs to cleanse the blood, which further leads to disturbed supply of the blood to heart and its muscles. The loss of blood and oxygen supply leads to filling of the lungs with blood and other dead tissues, which block the air passages of the lungs further decreasing oxygen supply.

So, we can see the all the PLACES OF KAPHA are involved.

Similarity of Symptoms of Corona and Tamaka Shwasha Explained

The Major symptoms of the CORONA are related to the Tamaka Shwasa. It is a broad term which includes many symptoms but Dyspnoea (breathing with difficulty) is predominant and it is mentioned as YAPYA ROGA. When the symptoms worsen we can relate them to CHINN SWASA AND THEN LEADING TO INCURABLE MAHA SHWASA ROGA. In corona infection the symptoms vary from mild to chronic so the treatment varies according to the symptoms associated with it.

In Charak Samhita (Chikitsa sthan) Acharya described involvement of dosha in different ratios according to the dosha involved treatment is done.

1. Vata-Kaphanashak Chikitsa

When Vata & Kapha are equally vitiated then Vata Kaphanashaka Chikitsa is useful.

2. Vata Karak & Kaphanashak Chikitsa

When Kapha causes obstruction of Vayu, then Kaphanashak & Vatakarak Chikitsa is useful.

3. Kaphakararak & Vatanashak Chikitsa

This is in the case of corona infection. From the symptoms like dry cough, we get to know that Corona has infected when the kapha dosha is depleted in the body. “Anilapaham” Chikitsa is considered to be superior one. Brihan Chikitsa has been indicated in Shwasa Roga.

Causes or Nidan of Shwasha Roga Are

In Charak the causes mentioned are

1. Udavarta
2. Dust
3. Indigestion
4. Old age
5. Due to suppression of urges

Here the cause is an infection which can be present in dust and other factors contribute as aggravating factors.

According to Chakrapani though the Kapha and Vata are vitiated mainly in Tamaka Shwasa, Pitta is equally vitiated in this allied condition which is responsible for the above symptoms.

It clearly justify the reason given above of depletion or shrinking of kapha element in the body.

In corona the virus infected the lungs. The REASONS (Nidana Panchaka) are related to Corona infection:

1. Reasons⁷ (Nidana) are mainly of two types

a. External Factors (Bahya Nidana): some mistakes done by the sense organs can lead to the factors which are not good for the organs.

Asatmendriyartha sanyoga: For example the pollens which got smelt by mainly NOSE (Ghranendriya), can reach the tongue (Rasanendriya) by our polluted hands (Sparsanendriya) and they reach in our body (Asatmyaindriyartha sanyoga) may precipitate Shwasa roga in the body.

Name is the case in corona, exposure of the organs mainly NOSE, HANDS, MOUTH AND TONGUE (Ghranendriya, Rasanendriya and Sparsanendriya and their Aasatmyaindriyartha sanyoga) to the virus and then virus travels down the trachea and lungs is the precipitating factor the corona Viral infection.

1. Not maintaining the social distancing.
2. Not taking proper precautions

3. Going to the crowded places also come in the external factors.

b. Internal Factors^[8] (Abhyantara Nidanas): In Shwasa, Kapha and Vata are the main Dosha, which are the internal factors responsible for the disease. Same we are considering in the CORONA infection, both vata and kapha are responsible only difference here is VATA is aggravated and the KAPHA is depleted and polluted. Involvement of PITTA is there also, it helps Vata in drying Kapha and shrinking of muscular tissues.

The persons who already have compromised immunity and are suffering from other ailments like Anaemia, diabetes, arthritis or neuropathy and the old age people are at more risks of have chronic infections from corona.

2. Willingly Causing Mistakes (Pragyaparadha)

It is a conscious or unconscious indulgence in harmful activities. It is again of two types.

a. Physical (Sharirika pragyaparadha): it is not maintaining social distance and going the crowded places and having the foods from the sources unknown which can also be adulterated as we are seeing around us. Adding to it is excessive physical working; smoking and alcoholism are other factors which reduce your immunity.

b. Mental (Manasika Pragyaparadha): Mental stress, anxiety, fear, sorrow, anger and money are the mental factors which are contributing in the corona infection. Electromagnetic pollution is also one reason for mental stress due to hyper activation of brain.

3. Climate (Parinama)

It means Kaal i.e. the effect of climatic condition. CORONA has infected every region and place, we can relate it to the overall disturbance in the ecology, written the reasons in general introduction, and how our climatic conditions have been disturbed all over the universe.

Presymptoms (Puravrupa)

Although the infection from corona is accidental, still it takes some days to develop some symptoms mild to moderate with time and body takes time to manifest the full symptoms. In modern science we call it the INCUBATION PERIOD after getting infected with virus.

Dry Cough Is There (Shushk Kasa)

It clearly shows the mucus or kapha is depleted in the lungs and lungs are dry.

Distension In Abdoman (Anaha)

The condition in which the flow of waste from body (mala) and air (vayu) from both the paths (mouth as vomiting or from anal canal in form of faecal matter) becomes restricted and the abdomen becomes flaunted is called Anaha, SHOWING the prakope of vata in the

body. Constant intake of heavy meals (guru, vidahi, Vishtambhi, sheeta and Rukshadi Aahar- Vihar) causes decreased fire in body (Agnimandya) and that leads to accumulation of waste material and mal absorption of food in body (Aamotpati, Vata, Vigunta and Mala Sanchaya) which hereby leads to constipation (Mala) and accumulated waste material start fermenting in body which gives rise to bubble formation (air) in the body and causes flatulence (Anaha).

Pain on the Lateral Side (Parshvashoola)

Sensation of pain in the lateral sides or in the ribs is called Parshvashula. When the air in the alveoli of the lungs becomes Aavrit by Kapha then the aggravated Vayu causes Parshvashula. The root of Aannvaha strotasa is stomach (Amashaya), which is situated in the left side, and pain in that region is referred to as Parshvashula.

Pain in Cardiac Region (Hrit Peeda)

Pain in pericardial region in heart or pain in chest is referred to as CARDIAC PAIN (Hrit Peeda). This pain is caused by aggravated respiration (Shwasa) which is due to the air (Vayu). In Aaptarpan janya Shwasa, there is loss of Rasadhatu. Hrit Peeda is seen as one of the symptom. Increased respiration and increase vata causes fatigue and hardening of the respiratory muscles, thereby leading to chest pain, inflammation in the respiratory tract also causes chest pain.

Difficulty In Breathing (Prana Vilomata)

Vitiated mucus (kapha) caused by Agnimandya and inflammation in the respiratory tract causes opposite flow (Viloma gati) of oxygen or obstruction in the passage. This leads to difficulty in breathing and causes uneasiness and chest pain to the patient and he feels exhausted.

Anorexia (Bhaktadwesh)

Dislike towards food is known as Bhaktadwesh. This condition is caused by the symptoms like heaviness caused by the infected mucus (Mala Kapha) which is due to Agnimandya. This digestion of food, which is already taken (Ama and Kapha), is a natural phenomenon taking place in the body and hence urge for intake of more food does not arise.

Arati

This symptom is commonly seen in most of the patient's obstruction of the respiratory tract by Vitiated mucus (kapha) leads to pranavilomta which causes Arati.

Aasya Vairasya

Aasya means mouth and Vairashya means altered test. When the taste of the mouth gets altered it is known as Vaktravairashya. Intake of heavy and dry meals (Guru, Vidahi, Vistambhi, Abhishyandi and Rukshadi) causes Agnimandya which results in the vitiation of the Rasadhatu.

Adhmaana

We are infected and still continue the intake of cool, dry and stale foods (Sheeta, Rukshadi and Vataprakopaka Aahar), it causes the vitiation of the Apana Vayu due to which the excretion of the stool does not take place. This leads to constipation, Due to constipation, obstruction of the tracts takes place and because of which Vata gets reversed and causes Adhmaana. This vitiated Vata spreads in the whole of the abdomen and enlarges it producing a specific kind of a sound. This symptom of Adhmaan is caused due to Annavaha Srotodushti.

Shankha Nistoda

Excessive use (Atisevana) of the causative factors of Shwasa Roga causes dryness (Vata prakopa) which leads to the reverse course of Vata. This Vata enters the head region and makes its way into the mastoid region where it produces pricking pain which is referred to as Shankha Nistoda. Acharya Vagbhata has narrated Shankha Nistoda as one of the symptoms in Vatik Pratishyaya.

Shoola

Intake of Dosha Prakopaka Dravyas causes the Prakopa of Vayu in the Kosta, which causes severe pain. Because of this pain the patient cannot breathe properly and if this pain gets severe during respiration then the phenomena of inspiration and expiration gets reduced.

Signs and Symptoms⁹ (Rupa)

If enough of precautions are not taken care of and treatment is not done, then body start to manifest Rupa means signs and symptoms of the disease. We can say it is the 4th stage (4th kriyakala) of prognosis of the disease, it is called manifestation of (i.e. Vyaktavastha) signs and symptoms of a disease.

प्रतिलोमं यदा वायुः स्रोतांसि प्रतिपद्यते | ग्रीवां शिरश्च
सङ्गृह्य श्लेष्माणं समुदीर्य च ॥५५॥

करोति पीनसं तेन रुद्धो घुर्घुरुक्तं तथा | अतीव तीव्रवेगं च श्वासं
प्राणप्रपीडकम् ॥५६॥

प्रताम्यत्यतिवेगाच्च कासते सन्निरुध्यते | प्रमोहं
कासमानश्च स गच्छति मुहुर्मुहुः ॥५७॥

श्लेष्मण्यमुच्यमाने तु भृशं भवति दुःखितः | तस्यैव च
विमोक्षान्ते मुहूर्तं लभते सुखम् ॥५८॥

अथास्योद्ध्वंसते कण्ठः कृच्छ्राच्छक्नोति भाषितुम् | न चापि
निद्रां लभते शयानः श्वासपीडितः ॥५९॥

पार्श्वे तस्यावगृह्णाति शयानस्य समीरणः | आसीनो लभते
सौख्यमुष्णं चैवाभिनन्दति ॥६०॥

उच्छ्रिताक्षो ललाटेन स्विद्यता भृशमर्तिमान् | विशुष्कास्यो
मुहुः श्वासो मुहुश्चैवावधम्यते ॥६१॥

मेघाम्बुशीतप्राग्वतैः श्लेष्मलैश्चाभिवर्धते |

स याप्यस्तमकश्वासः साध्यो वा स्यान्नवोत्थितः ॥६२॥

इति तमकश्वासः |

All the symptoms are same as are being seen in the patients who are getting infected with the Corona, they are described here in detail.

1. Pain In Neck And Back

“Greevashirashcha Sangrahya” : Increased dryness (Vridha Vata) contracts the muscles of head and neck due to efforts done by body to breathe during Dyspnoea. Vata patient feels some pain and stiffness of the head and neck. As dryness causes stiffness in the whole body and muscles, it feels like someone is tightly holding the head and neck.

2. Wheezing “Ghurghurakam” : this type of sound is produced as the patients breathe in and when breathes air out. This is equivalent to the wheezing sound described in modern science.

3. Peenasa “karoti peenasam” : Due to vitiated Vata, pollution of mucus (Shleshma) occurs in Pranavaha Srotas. It is due to the result of the hyper secretion in nasal mucosa.

4. Breathing Eases While Sitting “Asino labhate Saukhyam” : During attack, patient feels better in sitting position than in any other position. In sitting position diaphragm is lowered and secretion of airways do not obstruct the airways and there is more space for gases exchange. Hence the patient gets relief while sitting. This is equivalent to orthopnea.

5. Hot Liquids “Ushnabhinandati” : In Tamaka Shwasa Vata and Kapha are the main Doshas, both have the coldness as their property (Sheetalta), hence hotness (Ushna) is antagonist of Sheeta, which suppress Vata and Kapha Dosas. So the patient feels better when he takes warm articles like tea, coffee, hot water, soups and decoctions etc.

6. Swelling in Throat “kanthodhvansa” : When increased mucus accumulates in throat, the patient cannot speak properly and feels difficulty in speaking. It can also be due to the inflammation of lymph nodes in the throat, which get inflamed as the body defensive mechanism is working hard.

7. Dyspnoea “Ati Teevra Vega Shwasa” : we see the patients breathe with difficulty, as the muscles of the lungs also become stiff due to dryness (paroxysmal attacks). During Vega, patient gets the difficulty in breathing. (Pratyatma Lakshana in ayurveda). The word Vega has been mentioned in Charak and Vagbhata by adding adjectives like fast (Teevra) and more in number (Ati). This means that during the attack, patient feels very much troublesome. Due to obstruction of airway (Shwasa marga) less amount of oxygen (pranavayu) can enter the body. To compensate the required amount of clean air (pranavayu) the rate of respiration is markedly increased. Expiration is prolonged, but inspiration is shortened.

8. Shortness of Breath “Shwasa Krichhrata” : To fulfil the demand of oxygen the rate of respiration is increased, as the cough becomes extremely distressive, the patient may have gasping type of respiration. “Pratamyati

Ativegat” During severe and prolonged attacks of Shwasa the debris in mucus plugs and obstructs the airways and there is poor air entry and thus poor supply to other vital parts of the body. Due to this situation, a patient feels that he is covered by darkness (Andhakara) and worried.

9. Palpitation “Prana Prapidakam”: The heart rate is also increases due to increase in respiratory rate. Heart may exhaust as it has to work more. Hence there will be feeling of pain in chest.

10. Pain in Chest “Urahpeeda”: When vitiated Vata enters in chest (urah prades), there will be some pain.

11. Sleeplessness “Nachapi Nidra Labhate Shayane Shwasa Peditam”: The patient may not get sleep in the lying position because the secretions obstruct the airways, leading to dyspnoea and cough.

12. Pain in Sides “Shayanah Parshva Peeda”: When patient takes recumbent position there may be sudden pressure on the lungs due to raised diaphragm and air present in lungs cannot pass out easily through the airways, because of obstruction in bronchioles by secretions and debris. This trapped air inside the lungs exerts pressure on the pleura and chest wall thus resulting in mild, moderate or severe pain.

13. Expectoration of Cough Gives Relief: “Shleshma Vimoksante Sukham”: If the sticky sputum is expectorated, frequency of cough is reduced and easy ventilation is facilitated for a short time. So after expectoration patient feels better.

14. Exhaustion “Shleshma Samuchyajanya Dukham”: the mucus secreted in the respiratory tract is tenacious and sticky; so if expectoration could not clear the airways and secretion obstructs the air passage. To expel this viscous secretion constant coughing will be there and the patient gets exhausted due to cough.

15. Difficulty in Speaking

“Krichhrachhaknoti Bhashitum”: An intense coughing and breathlessness result to hoarseness of voice and patient feels difficulty in talking. The tenacious mucus coated in the throat including vocal cords leads to difficulty in speaking.

16. Breathlessness “Kasate Sannirudhyate”: During episodes of cough patients breath ceases for few second and patient becomes motion less.

17. Recurrent Fainting “Kasate Muhurmuhu Pramohanam”: Patient gets repeated attacks of fainting during continuous coughing, which if continue for long time leads the patient to distress and fear.

18. Face Up “Ucchritakhsa”: When proper oxygenation is hampered due to obstruction in the air ways, to meet the oxygen demand there may be gasping for air; patient puts the face upward to facilitate straight airways. Hence he keeps his eyes open as he is in apprehension.

19. Anorexia “Aruchi”: Acharyas have stated that Shwasa originates from Pitta sthana; hence there is always a possibility of Agni Dusti and disturbed digestion process leading to Aruchi.

20. Thirst “Vishushkasyata Trisha” Due to rapid breathing during attack dryness of mouth is an effect of water loss from the body.

21. Sweating “Lalatasveda”: This clinical feature of asthmatic attack indicates exertion due to rapid respiration. Sweating is also an indication of tachycardia.

Types of tamaka shwasa

ज्वरमूर्च्छापरीतस्य विद्यात् प्रतमकं तु तम् ।
उदावर्तरजोऽजीर्णक्लिन्नकायनिरोधजः ॥६३॥

तमसा वर्धतेऽत्यर्थं शीतैश्चाशु प्रशाम्यति ।
मज्जतस्तमसीवाऽस्य विद्यात् सन्तमकं तु तम् ॥६४॥
इति प्रतमकसन्तमकशवासौ ।

In a patient of tamaka shwasa if jwara (fever) and unconsciousness are occurring as complication, then it is called as pratamaka shwasa. The shwasa produced due to udavarta (upward movement of vayu in koshttha), dust, indigestion, excessive liquid accumulation in the body (klinna kaya), and suppression of natural urges results in increase of tama. The person suffering from this shwasa feels as if he is submerged in darkness, thus it is known as santamaka.

PATIENT who has further infection and the symptoms are not taken care then the symptoms of Chinna swasa appear in the patient who has been affected by the corona virus. The symptoms of Chhinna swasa are:

Chhinna Shwasha

यस्तु श्वसिति विच्छिन्नं सर्वप्राणेन पीडितः । न वा श्वसिति
दुःखार्तो मर्मच्छेदरुग्दितः ॥५२॥

आनाहस्वेदमूर्च्छार्तो दहयमानेन बस्तिना । विप्लुताक्षः
परिक्षीणः श्वसन् रक्तैकलोचनः ॥५३॥

विचेताः परिशुष्कास्यो विवर्णः प्रलपन्नरः । छिन्नश्वासेन
विच्छिन्नः स शीघ्रं प्रजहात्यसून् ॥५४॥

इति छिन्नश्वासः ।

The patient suffering from chhinna shwasa has interrupted breath as the prana (vital organs of the body) are afflicted. There is complete stoppage of breath, such individual suffers from intense pain as if cutting of the marma (vital parts), constipation with abdominal distension, sweating, unconsciousness, burning sensation in basti (bladder and urinary system), excessive tears in eyes, emaciation of the body, the eyes become red when patient struggles to breath, mental disorientation, dryness of mouth, discoloration of skin, delirium, looseness of joints. An individual suffering from above said features of chhinna shwasa succumbs to death very quickly.

Urdhva Shwasa

दीर्घं श्वसिति यस्तूर्ध्वं न च प्रत्याहरत्यधः ।

श्लेष्मावृतमुखस्रोताः क्रुद्धगन्धवहार्दितः ॥४९॥

ऊर्ध्वदृष्टिर्विपश्यंश्च विभ्रान्ताक्ष इतस्ततः ।

प्रमुहयन् वेदनार्तश्च शुष्कास्योऽरतिपीडितः ॥५०॥

ऊर्ध्वश्वासे प्रकुपिते ह्यधःश्वासो निरुध्यते |
मुह्यतस्ताम्यतश्चोर्ध्वं श्वासस्तस्यैव हन्त्यसून् ॥५१॥
इत्यूर्ध्वश्वासः |

The vitiated kapha obstructs channels of respiration leading to aggravation of vata resulting in prolonged expiration and shallow inspiration (breath doesn't get deeply inspired). The patient looks up with moving eye balls as if he is scared of something. When he gets afflicted with this type of shwasa he suffers from unconsciousness, dryness of mouth, restlessness. The upward movement of vayu is aggravated resulting in obstruction of downward movement and unconsciousness, black outs and he succumbs to death quickly.

Mahashwasa

उद्धयमानवातो यः शब्दवदुखितो नरः |
उच्चैः श्वसिति संरुद्धो मत्तर्षभ इवानिशम् ॥४६॥
प्रनष्टज्ञानविज्ञानस्तथा विभ्रान्तलोचनः | विकृताक्ष्याननो
बद्धमूत्रवर्चा विशीर्णवाक् ॥४७॥
दीनः प्रश्वसितं चास्य दूराद्विजायते भृशम् | महाश्वासोपसृष्टः
स क्षिप्रमेव विपद्यते ॥४८॥
इति महाश्वासः |

The patient breathes with a loud noise during the night due to the upward movement of aggravated vayu like intoxicated bull. The vayu gets obstructed and the person becomes unconscious. The eyes get distorted and he cannot visualize properly. The eyes and face become abnormal and the elimination of urine and faeces is obstructed and the voice becomes feeble and the person looks tired and respiration could be heard from distance, such person suffering from mahashwasa succumbs to death very fast. The death occurs as all the systems get deprived of blood and the oxygen.

Upashaya and Anupashaya

These are the factors which help in aggregating or subsiding of the symptoms due to infection. The factors which reduce the symptoms are called upashaya and which increase them they are called Anupashaya.

1. Upashaya

- Shleshma Vimokshante Sukham [Feeling better after expectoration]
- Aseenolabhate Saukhyam [Feeling comfort in sitting position]
The patient feels better in sitting position as compared in lying down position.
- UshnaAhara Vihara [Relief by taking hot things]
Tamakshvasa patient gets relief by those things which are ushna in guna. Due to ushna guna kaphavilayan occurs.

2. Anupashaya

- Sleshma Amuchyamana Bhrisham Dukhitaha – [Owing to inability to expectorate he feels greatly disturbed]
- Durdina [Cloudy climate]
- Meghambuna [Rainy Season]
- Sheeta Ritu [winter]
- Sheetambu [Cold water]
- Pragvaten [Eastern wind]
- Sayanaha Shwasa Peditam [Aggravated in lying posture]
- Shleshma Vardhaka Aushadhahar Viharadibhi Vridhi

General Prognosis

Acharya Charak has described Samanya Samprapti of Shwasa in Chikitsa Sthana. According to him due to Nidana sevana, the vitiated Vata enters in the pranavaha srotas (Respiratory Channels) and irritates the Urastha Kapha (Kapha staging in chest).

In Corona infection we can see the infection travelling to lungs and causing dry cough, which shows that vata is getting aggravated and then there is pollution of mucus (kapha). As is evident from the factors we considered in the nidhana, this irritates kapha (already diminished, depleted and polluted due to various factors discussed) and the polluted mucus (debris of dead cells) then obstructs the Pranavaha srotas (Respiratory Channels) and gives rise to various symptoms.

Vitiated kapha is responsible for obstruction. Vitiated Vata dosha which is Ruksha, Shuska and Laghu produces Rukstha, kathinnyata and sankocha in Pranavaha srotas. Udakavaha srotas & Annavaaha srotas also deranged.

Vishist Samprapti of Shwasa

In Shwasa roga, the basic pathogenesis is initiated by the diets and habits which vitate Kapha.

Vitiated Kapha in the Pittasthana (the Amashaya) circulate in the body as aam.

Ama Dosa can also circulate in the body following certain diseases like Jwara, Agnimandya, Amatisara and Visuchika.

On the other hand aggravation of the Vata either by the diet and habits or by the systemic diseases like kshaya, urakshata, pandu or pratisyaya also makes the triggering effect for the Pranavaha sroto vaigunya along with vitiated Kapha or Ama.

Pranavaha Sroto vaigunya can also directly result from suppression of natural urges like udavrat, Aadhovata and Chhardi. Physical exertion can also contribute to the Pranavaha Sroto vaigunya. The functional derangement of Pranavaha srotas will be accentuated to a fully fledged sroto dusti by the interaction of any of the precipitating

causes like dust, smoke, wind, marmaghata and use of excessive cold water. Once the Srotodusti is occurred the Prana Vayu gets abnormal by the Sanga and Vimargagamana. This in turn is manifested as Shwasa roga.

The vitiated Vata is Pratiloma (reverse) in its course in Tamak Shwasa, which reaches the respiratory tract, induces airway obstruction and due to excess bronchial secretion interfaces with the flow of the air giving rise to Gurghuraka (wheezing sound). Hence there is a great cooperation of pathogenesis between ancient and modern concepts. Here the vitiated Prana Vayu produces broncho-spasm and the vitiated Kapha makes to swelling of the mucous membrane and excessive secretion of mucous, which takes place in Pranvaha Srotas.

Is It Curable or Incurable (Sadhyasadyata)

Tamak shwasa is a condition of respiratory system which also disturbs all the other system of the body like digestive, circulatory, lymphatic, nervous, excretory etc. The vitiation of vata & Kapha dosha is predominantly responsible for pathogenesis of shvasa roga. In the pathogenesis of Tamaka Shwasa, Agni remains Manda. The Ama Dosha is formed during the stage of Mandagni (at Kostha and Dhatu level).

On the basis of prognosis diseases are classified as Sadhya and Asadya. Those which can be cured by treatment are termed as Sadhya, whereas those which are incurable are termed as Asadya.

Charak described it as most fatal disease and no other diseases are capable of taking away life as quickly as Shwasa. Charak says that all Shwasa are Sadhya, if their Rupa are not clearly and totally manifested and also if they occur in Balwan person.

Tamak Shwasa is Yapyia (under control only during the treatment) but in early stages it is Sadhya.

Tamaka Shwasa is Krichrasadya or is curable when it is having less duration of onset and in weak patient with chronic type of Tamaka Shwasa becomes Yapyia (incurable).

According to Acharya Charaka a disease according to dictums of Ayurveda should be independent and curable by the specific therapy prescribed for it. Whereas symptoms are subordinate to the primary disease and they are cured by the same therapies described for the primary disease.

According to Acharya Charak following three basic steps should be adopted while treating any disease i.e. Nidana Parivarjana, Samshamana and Samshodhana.

1. Nidana Parivarjana

First line of treatment is to avoid the causative factors. If the precipitating or predisposing factors are not avoided,

the Doshas involved in the pathogenesis will further be aggravated and the prognosis will be worse. In treatment of viral infection avoidance of causative factors or triggering factors play a very important role.

2. Samshaman and Samshodhana Chikitsa

The line of treatment based on these therapies described by Acharya Charaka can be subdivided as:

- a. Samanya Chikitsa Krama (General principles of treatment)
- b. Vishisht Chikitsa Krama (Specific treatment)

a) Samanya Chikitsa Krama (General principles of treatment): Charak mentioned the treatment of tamak Shvasa as per Doshic status.

- Vata-kaphanashak chikitsa
When Vata & Kapha are equally vitiated then Vata Kaphanashaka Chikitsa is useful.

- Vata Karak & kaphanashak chikitsa
When Kapha causing obstruction of Vayu then Kaphnashak & Vatakarak Chikitsa is useful.

- Kaphakarak & Vatanashak Chikitsa
“Anilapaham” Chikitsa is considered to be superior one. Brihan Chikitsa has been indicated in Shwasa Roga.

b) Vishisht Chikitsa Krama (Specific treatment): It is done after doing the anshansh kalpana of dosha.

CONCLUSION

All the symptoms being manifested in the patient affected by the corona virus are similar to the Tamak shwasa, when the condition of the patient deteriorates then the symptom can be compared to the symptoms of other chronic types of the Shwasa.

It is affecting mainly the respiratory system but also disturbs all the other system of the body like digestive, lymphatic, circulatory, and excretory and the nervous systems etc. On this basis of comparison of the symptoms we should also consider the treatments mentioned in this chapter.

Involvement of three Srotas i.e. Pranvaha, Udakavaha and Annavaha with their specific clinical features shows the broad approach to disease.

Corona mainly causes a chronic inflammatory disease, affecting the air tubes leading to laboured breathing. The main cause of inflammation is chronic irritation due to hyper-reactivity of lung immune system induced by different kinds of external and internal allergens. The aetiology, pathogenesis, clinical features and prognosis of Tamaka Shwasa coincide very much with CORONA INFECTION.

REFERENCES

1. Coronavirus pathophysiology - wikidocwww.wikidoc.org › index.php › Coronavirus_pathophysiology.
2. Susan R. Weiss, and Sonia Navas-Martin. Coronavirus Pathogenesis and the Emerging Pathogen Severe Acute Respiratory Syndrome Coronavirus, *Microbiol Mol Biol Rev.*, 2005 Dec; 69(4): 635–664.
3. Chaolin Huang, Yeming Wang, Xingwang Li, Lili Ren, Jianping Zhao, Yi Hu, Li Zhang, Guohui Fan, Jiuyang Xu, Xiaoying Gu.
4. Zhenshun Cheng, Ting Yu, Jiaan Xia, Yuan Wei, Wenjuan Wu, Xuelei Xie, Wen Yin, Hui Li, Min Liu, Yan Xiao, Hong Gao, Li Guo, Jungang Xie, Guangfa Wang, Rongmeng Jiang, Zhancheng Gao, Qi Jin, Jianwei Wang, Bin Cao. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China, *Lancet*, 2020; 395: 497–506.
5. Pt. Kashinath Sashtri & Dr. Gorakhnath Chaturvedi. *Chark Samhita, Janapado- dhvamsaniyam Vimana, Chapter, III.*
6. Pt. Kashinath Sashtri & Dr. Gorakhnath Chaturvedi. *Chark Samhita, Hikka Shwasa Chikitsa, Chapter, 17.*
7. Air pollution - World Health Organization <https://www.who.int/airpollution/news-and-events/how-air-pollution-is-destroying-our-health>.
8. Kaur Inderjit, Singh Shaleen, Shrivastava Naveen Kumar. Ayurvedic View of Mode of Effect of Electromagnetic Radiations on Body and Brain and Remedy to Protect Them, *Jour. of Ayurveda & Holistic Medicine, Volume-VII, Issue- III, May-Jun. 2019; 42 - 53.*
9. Kaur Inderjit, Singh Shaleen, Rahul Satyakam. Prognosis and Management of Neuropathy According to Ayurveda - a review article, *International Journal of Modern Pharmaceutical Research*, 2020; 4(3): 60 - 70.
10. Pt. Kashinath Sashtri & Dr. Gorakhnath Chaturvedi. *Chark Samhita, Hikka Shwasa Chikitsa, Chapter, 17.*