



A HOLISTIC SIDDHA TREATMENT REGIME TOWARDS THE EFFECTIVE MANAGEMENT OF COVID-19 SECOND WAVE

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ABSTRACT

As Tamil Nadu was hit by second wave of Covid-19 during May-June 2021, the traditional Siddha system of medicine has stood more than handy to tackle the Pandemic. In this scenario, a well trained team of Siddha experts at a tertiary Siddha covid care centre at Madurai, South India, took efforts in handling about 262 Covid positive cases efficiently by providing a holistic Siddha treatment regime of healthy diet plan. Siddha covid package of traditional medicines and external therapeutic measures and the results were outstanding. The treatment plan and the clinical outcomes have been vividly shared in this article in order to unravel the efficacy of this Siddha towards the improvement of Covid-19 symptoms and its noteworthy potential to inhibit the disease progression to severe stage.

KEYWORDS: Siddha, Covid-19, Covid Diet Chart, Traditional medicine, Natural treatment.

INTRODUCTION

According to the World Health Organization (WHO), viral diseases continue to emerge and represent a serious issue to public health. In the last twenty years, several viral epidemics such as the severe acute respiratory syndrome coronavirus (SARS-CoV) in 2002 to 2003, and H1N1 influenza in 2009, have been recorded. The etiology of the illness of present pandemic is attributed to a novel virus belonging to the coronavirus (CoV) family. On February 11, 2020, the WHO Director-General, Dr. Tedros Adhanom Ghebreyesus, announced that the disease caused by this new CoV was a "COVID-19," which is the acronym of "Coronavirus disease 2019."^[1]

The potential for these viruses to grow to become a pandemic worldwide seems to be a serious public health risk. Health organizations coordinate information flows and issues directives and guidelines to best mitigate the impact of the threat. Despite of discovery of vaccines, many uncertainties still remain with regard to both the virus-host interaction and the evolution of the epidemic, with specific reference to the times when the epidemic will reach its peak.^[2] The severe group has a high mortality rate and is associated with older age, underlying diseases such as diabetes.^[3] Hence it is therefore essential to work out on an effective natural protocol to effectively handle this situation synergistically and therefore aid in the reduction of morbidity and mortality.

The Siddha system of medicine is one among the antique medical systems of South India. According to Siddha science, the three subtle entities called *Vali (Vatham)*, *Azhal (Pitham)*, and *Aiyam (Kabam)* are said to be the three vital life forces /functional units of the human body. These units are responsible for the general health and wellbeing of an individual when they are present in the ratio of 1:½:¼ respectively.^[4] Alteration in any of these humours can occur through unhealthy diet and lifestyle practices resulting in reduced health status making the individual prone to susceptible diseases depending on the humoral alteration. In the Siddha system, Epidemics/Pandemics are mentioned as "*Uzhi Noi*" and the symptoms vary in each individual based on the patient's immunity (*Noyinan vanmai*).^[5] Hence Siddha system can offer a personalized therapeutic regimen based on the tri humoral body constitution and symptoms.

India reported its first laboratory-confirmed case of SARS-CoV-2 from the state of Kerala in the later part of January 2020.^[6] While, world governments are at work to establish counter measures to stem possible devastating effects. As on October 26, 2020, India ranked second in terms of burden of COVID-19 cases globally, with 7.9 million cases including 119,014 deaths. But in spite of huge population and overcrowded situation, the fatality rate due to COVID-19 infection was lower than the global fatality rate.^[7]

There was also heterogeneity in the mortality rates among states of India. Chennai city, the capital of Tamil Nadu, contributed nearly half of COVID-19 cases reported in the state of Tamil Nadu.^[7] In view of increasing number of cases, the government of Tamil Nadu established makeshift temporary medical care isolation centres named as COVID Care centers. COVID Care centers were established by converting the existing exhibition centers, trade centers, and educational institutions into isolation centers, providing medical care, clinical monitoring, food, and shelter. Asymptomatic and mild to moderate symptomatic patients were admitted in these centers. Establishment of CCC made hospital beds available for moderate and severely ill patients in hospital/medical institutions.

In this article, we describe the demographic, epidemiological, and clinical characteristics; clinical progression; and outcome details of 262 COVID-19 patients in one such covid care centre at Madurai, Tamil Nadu which was efficiently handled by the Almaa Herbal Nature, Madurai.

METHODOLOGY

Patients tested positive for SARS-CoV-2 by real-time reverse transcription PCR (rRT-PCR) assays of the upper respiratory tract (nasal and pharyngeal) were isolated in the Covid care centre. The Almaa Herbal Nature took efforts in taking care of the 120 bedded American college Siddha covid care centre at Madurai, South India

from 17.05.2021 to 30.06.2021. A well trained team of Siddha dedicatedly worked in team spirit and treated about 262 Covid positive cases.

All patients willingly opted for Siddha care and informed consent was obtained from them as per biomedical ethics. All of them had their body temperature checked, blood pressure measured by digital sphygmomanometer, and oxygen saturation (SpO₂) and pulse rate recorded with a finger pulse oximeter. The vital parameters were checked thrice a day. For discharge or home quarantine, the criteria set forth by the Ministry of Health and Family Welfare were followed.^[7] Patients with significant symptoms who did not show improvements were immediately shifted to a tertiary care hospital in ambulance.

Treatment Regime

With the above said goals of providing a holistic treatment care, and to prevent the morbidity and mortality, The Covid care centre focuses on cardinal principle of Siddha system is „Unavamarunthu“ (food is medicine) and hence framed its Covid treatment package based on traditional charm and relevance. The treatment plan with dietary regime was followed time to time for each Covid case and we provided a person centred approach and offered a holistic therapeutic care, tailored for each based on their symptoms. The patients were continuously monitored by the doctors and staffs to assess their prognosis.

Covid Siddha Therapeutic Regime chart

Time	Procedure / medicine	Food / medicine
6:00 A.M.	Rinsing the throat with salted hot water	Salted hot water
6:15 A.M.	Drink	Herbal tea
8:00 A.M.	Kashaayam	Kabasura kudineer
8:30 A.M.	Breakfast	Chenna, fruit salad, ragi, rice puttu, dosa, idli, idiyappam, vegetable kichadi, pongal.
9:00 A.M.	Medicine	Aadadhodai manappaagu Nilavembu maathirai If required: Vettumaara kuligai, brammanandhabairavam.
10:30 A.M.	Drink	Amla juice/ lemon ginger juice/ mint juice+ honey + hotwater
12:30 P.M.	Lunch	Food plan 1-7
1:00 P.M.	Medicine	Aadadhodai manappaagu
4:00 P.M.	Rinsing the throat with salted hot water	Salted hot water
5:00 P.M.	Drink	Herbal tea
7:00 P.M.	Kashaayam	Kabasura kudineer
7.30 P.M.	Herbal Tiffin	Dosa, idli, adai, wheat semolina upma
8.30 P.M.	Medicine	Aadadhodai manappaagu Nilavembu maathirai If required: Vettumaara kuligai, brammanandhabairavam.
Night 9:00	Drink	Karisaalai mixed milk

Food Plan for Lunch

1. Urud dhal rice, Rice, Drumstick sambar, Pepper rasam, Bitter guard fry, Ginger thuvayal, Jeera water.
2. Amla rice, Vegetable mixed rice, Rice, Lemon ginger rasam, Beans fry, Manathakkaali lettuce Kootu, Jeera water.
3. Sesame rice, Rice, Pepper gravy, Field beans fry, Curry leaves thuvayal, Ponnaanganni lettuce kootu, Thoodhuvalairasam, Jeera water.
4. Mint rice, rice, Ladies finger sambar, Carrot/beans fry, Thoodhuvalaithuvayal, Murungai lettuce kootu, Jeerarasam, Jeera water.
5. Curry leaves rice, Rice, Sundakkaai gravy, Kandanthippilirasam, Kovakkaai fry, Smashed chenna dhal, Jeera water.
6. Coriander leaves rice, Rice, Dried ginger gravy, Banana flower poriyal, Peanut, pepper rasam, sesame thuvayal, jeera water.
7. Dhal rice, Rice, Mint thuvayal, Small onion + garlic + mudakkathaan leaf fried gravy, lettuce fry, Ridge guard kootu, betel leaf + pepper + jeera rasam, Jeera water.

* Eggs were given if needed.

Scientific rationale behind the choice of drugs

All the Siddha medicines provided at the Covid care centre had a vast backup of scientific evidences that reclaim their efficacy as mentioned in traditional texts. The following are the scientific evidences of the handled regime.

1. *Kabasura kudineer*

The In-silico method and demonstrated that Chrysoeriol and Luteolin from *Kabasura Kudineer Chooranam* inhibit ACE2 spike protein of SARS-CoV-2. *Kabasura Kudineer* has been reported to have antipyretic, anti-inflammatory, and antibacterial activity.^[8] Further, KSK also showed significant Immunomodulatory, thrombolytic activity, Antioxidant and anti-atherogenic activity. Obtained results from molecular docking showed that Acetoside, Luteolin 7 -rutinoside, rutin, Chebulagic acid, Syrigaresinol, Acanthoside, Violanthin, Andrographidine C, myricetin, Gingerenone -A, Tinosporinone, Geraniol, Nootkatone, Asarianin, and sitosterol are main compounds from *Kabasura Kudineer* which may inhibit COVID-19 giving a better energy score compared to synthetic drugs. More effective phytocompounds in *Kabasura Kudineer* prevents the spike proteins to bind with host cell receptor. The spikes of RdRp protein of the Virus is locked and movement is restricted.^{[9],[10]}

2. *Adadhodai manappaagu*

From the docking results, the researchers observed that MD4 (vasicoline), MD5(anisotine) has the highest activity of inhibition for both protease and RdRp.^[11] The methanolic extract of *Justicia adadhoda* contains vasicine as a principle compound and has a potent antiviral activity. This medicine treats respiratory system

diseases, particularly in the lower respiratory tract.^[12] The alkaloids (vasicine and vasicinonein) of *Adathodai* has mucolytic and bronchodilator properties. It also helps in the treatment of low platelet counts in covid-19. *Adadhodai* prevents chemotaxis and release of cytokines and chemokines. Leaf has anti-inflammatory action. It also triggers new platelet formation, thus prevents blood clotting related complications. The soothing action helps irritation in the throat and the expectorant helps loosen phlegm deposits in the airway which makes *Adadhodai* was good remedy for sore throat. This herb exhibits antispasmodic, expectorant and blood purifying qualities. The reduction of Interleukin-6(IL-6) in blood shows *Adhodai manapagu* prevents the release of cytokines and its anti-inflammatory effect. The increase of Platelets in blood is a proof for the triggering effect of *Adathodai manapagu* in new platelet formation.^[13]

3. *Nilavembu maathirai*

Nilavembu Kudineer is known for its role in immunity modulation and can be used both in the pyrexia and post-pyrexia phase of the disease.^[14] The In-silico Molecular Docking Analysis of the Bio-active compounds (benzene 123 triol) found in the aqueous extract of Nilavembu kudineer chooranam against the ACE2 enzyme receptor which is the route of entry in the pathogenesis of Novel corona virus. Nilavembu Kudineer is known for its antipyretic, anti-inflammatory and analgesic properties.^[14,15]

4. *Vettumaara kuligai*

Vettumaaran Kuligai is used for fever, vomiting and abdominal colic pain. *Vettumaaran Kuligai* has various alkaloids which is effective against virus. Thymol has Anti-influenza and Anti-viral action, p-cymene has Anti-viral and acts against Herpes simplex virus Type γ , terpinene has Anti-Viral action.^[14,16]

5. *Brammanandha bairavam*

It was found that *brahmanandha bairavam mathirai* was able to inhibit viral replication. It also blocks CHIKV entry into the host cells. *Brahmanandha bairavam mathirai* and *Vishnu chakram* have been used for the treatment of pyrexia phase of chikungunya, and may act as antivirals. *Nilavembu Kudineer* is known for its antipyretic, anti-inflammatory and analgesic properties and thus have a role in immune modulation. It has been used for the treatment of pyretic phase of many pandemic diseases.^[14]

6. *Karisalai*

Karisalai extracts of *Eclipta alba* are proven to have strong mucolytic activity, Improves mucociliary clearance, antiviral, anti-inflammatory, strengthens nasal associated lymphoid tissues that fight against any foreign invaders. The reduction in inflammatory markers Ferritin, LDH, CRP and ESR shows the Anti-inflammatory action of *Karisalai Nei*.^[10]

RESULTS AND DISCUSSION

In this report, efforts have been taken to brief our clinical outcomes and we have categorized the cases according to Gender, Age Groups, Symptoms, Co morbidities, Oxygen saturation level as follows.

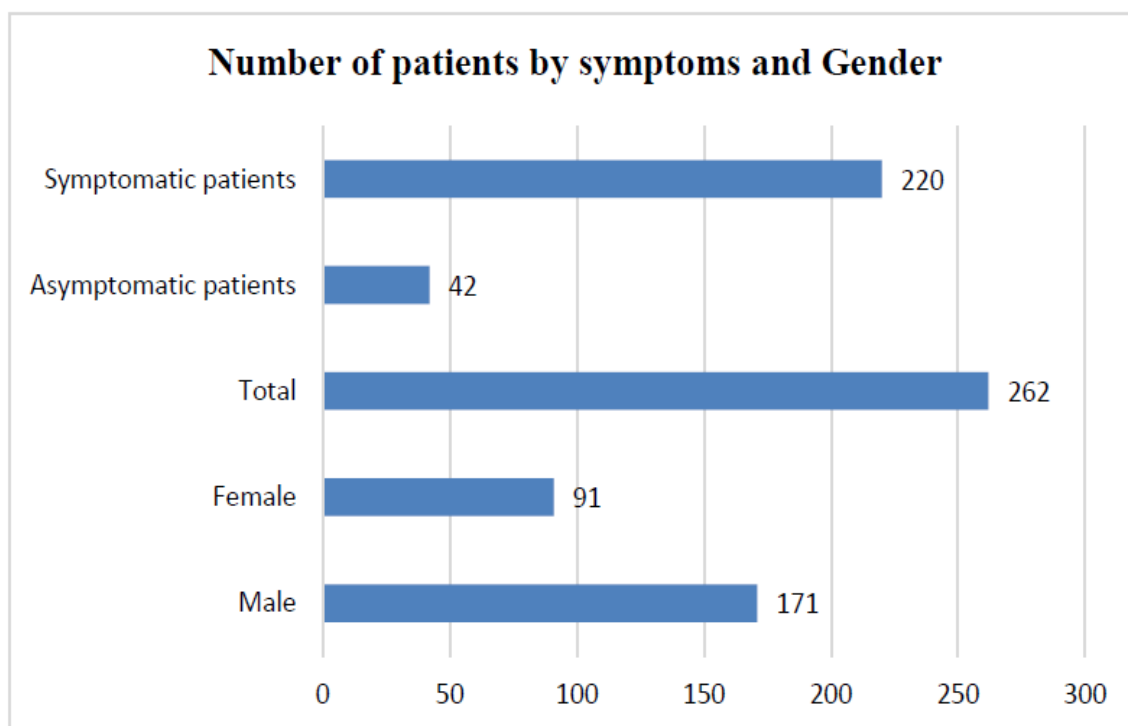
1. Covid-19 - Effects on Gender

While males and females have the same prevalence of COVID-19 men are more at risk for worse outcomes and death, independent of age, with COVID-19^[16] as shown by previous research studies. The scenario was likely in our Covid care set up too. Among the total of 262 Covid cases, 171 were males and 91 were females. This has been found due to the higher amount of circulating

ACE2 receptors (receptors that helps virus to attack other cells) in males^[17] and in patients with diabetes or cardiovascular diseases.

2. Symptomatic an Asymptomatic cases

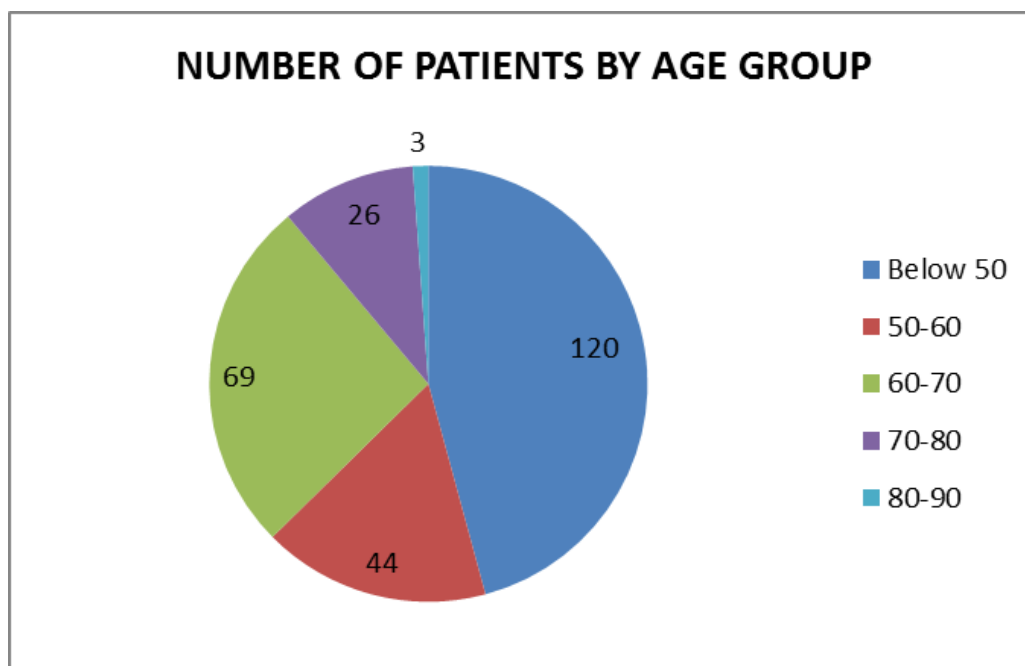
CDC reports that about 35% of Covid positive cases may be asymptomatic. Regardless of how COVID-19 presents, the disease is contagious and can easily transmit to others.^[18-20] The possibility that an asymptomatic person could infect other people is exactly the same as in symptomatic cases. Bearing this in mind, utmost care was offered to both symptomatic and asymptomatic cases.



3. Effect of Siddha Covid care on Geriatric (Old Age) cases

Older age and underlying diseases have been noted as the main factors for vulnerability to COVID-19 and so the geriatric population faces special risks for COVID-19.^[21] Researchers have concluded that an age ≥ 60 years as a major risk for an inevitable worsening of health related to vital organs. Furthermore, age-related physiological functions of multiple organs include the respiratory system and the resulting impaired mucociliary clearance of foreign particles or micro-organisms which affects responsiveness and tolerance in older patients.^[22,23] Old age has also been associated with increased production of interleukin-6 (IL-6) in the brain and the microglia show increased expression of voltage-activated K⁺ channels, potentially enhancing IL-6 production and neuro

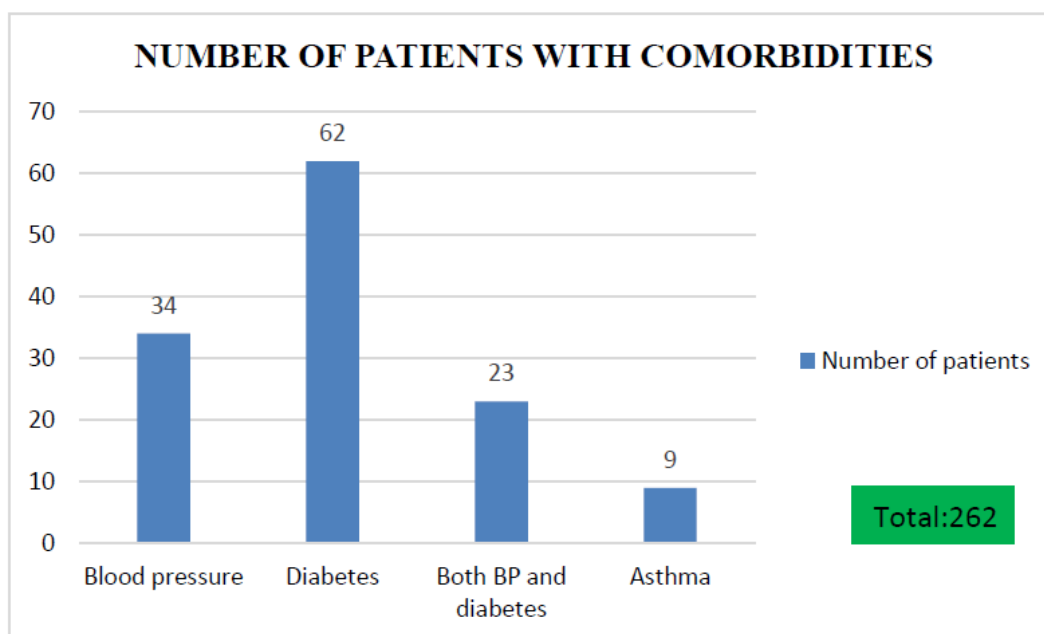
inflammation resulting in weakened innate/adaptive immune defense.^[24] Furthermore, in association with underlying chronic diseases, acquisition of infections is also more likely with age.^[25] Of the 262 corona patients who underwent Siddha medicine treatment, 142 were over 50 years of age and this was almost about 50%. In spite of the above said predisposing risk factors for old age. Among admitted 142 old aged corona patients, 139 i.e. approximately around 98% were recovered by Siddha medicine treatment with in 7 to 10 days of time period. While Social isolation and disconnection from family can predispose to depression and anxiety in the elderly that may further increase risk of adverse outcomes of COVID-19, we also made sure that they feel at home by providing them personal care and concern.



4. Effects of Siddha Covid care on Patients with Co morbidities

The medical definition of Co morbidities is when a person has more than one underlying health-related conditions present in them at once. Co morbidities are generally non- communicable and contribute to nearly two-thirds of the annual deaths around the world. That is over 36 million deaths annually. Prominent forms of co morbidities are high blood pressure, diabetes,

cardiovascular diseases, arthritis, stroke, and cancerous conditions.^[26] Among the 262 patients who approached us for Covid treatment, most of them had diabetes mellitus (62) followed by High Blood pressure (34). 23 patients had both High Bloodpressure and diabetes and 9 among them had bronchial asthma. Though 128 among 262 patients had co morbidities, all of them recovered well within a span of 7-10 days.



5. Effect Covid care for Hypoxic patients (Low oxygen saturation)

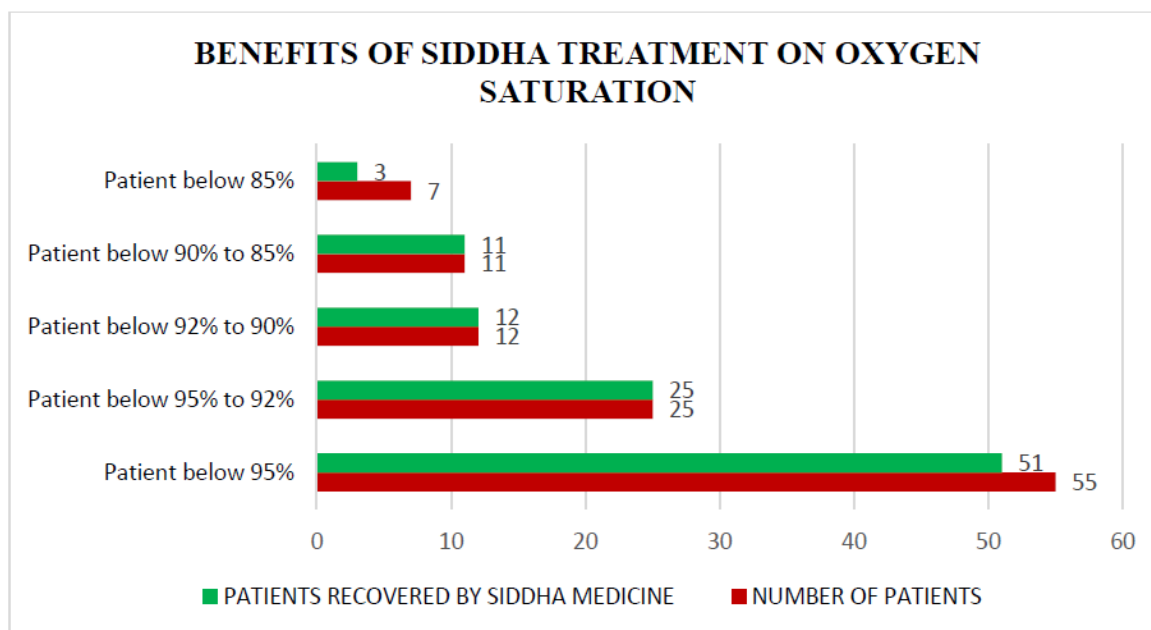
Silent hypoxia (Low oxygen saturation) is one of the biggest and most life-threatening mysteries of Covid-19, if undetected for too long it can cause irreparable damage of vital organs such as lungs, heart, kidney,

gastrointestinal tract, coagulation system.^[27] For some reason, in certain patients the virus affects both the blood vessels in the lungs, as well as air sacs in the lungs, mismatching the flow of blood and air, causing the oxygen levels to drop. The virus is affecting the blood vessels lack of ability to contract and constrict the way

they are supposed to, or perhaps there is actually some central effect on the brain where the respiratory effort is not picked up because the virus is affecting the brain's ability to recognize the hypoxia. Coronavirus disease 2019 associated pneumonia could lead to acute respiratory distress syndrome (ARDS).^[28] Specifically, COVID19 associated ARDS engages older individuals and those with co morbid conditions such as hypertension and diabetes mellitus.^[28]

Out of 262 patients, 55 patients suffered low oxygen saturation level within 5 days of their arrival. They were

treated with Poly herbal powder called “*Ilavangadhi Chooranam*” and “*Poorana Sandhrodayam*” tablets were provided to patients who go below 95% saturation. The oxygen stability increased between 3-5% in the next 12 hours (90% to 94% in 12 hours, 92% to 98% in 18 hours) and there was no significant drop in breathing difficulty and most of them recovered well as shown in the graph below and 8 among them were referred to higher centre for further management. Among admitted 142 old aged corona patients, 139 i.e. approximately around 98% were recovered by Siddha medicine treatment with in 7 to 10 days of time period.



Immune Booster Kit for Post Covid protection

As Immunity plays a key role in Post Covid Protection, each patient were provided with Almaa Immune Booster Kit with *Kabasura kudineer Chooranam*, *Adathodai Manapaagu*, *Thaliathy Chooranam Tablets*, *Nilavembu Tablets*, *Ayush kudineer Chooranam* all of which can boost the Immunity in order to prevent post Covid complication. While several long lasting health complications have been reported in previous research studies on Covid-19 infections, the follow up of our Covid-19 cases showed no reports on Post Covid complications and they are being followed up by our Covid care team till date.

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CONCLUSION

This brief report is a highlight on the effectiveness of Siddha system of medicine for the management of Covid-19 symptoms offering meticulous recovery without any post Covid complication. The scientific facts about the Siddha medicines prove beyond doubts that the selection suitable of medicines with a dedicated team could act as a weapon to combat this life-threatening disorder. The present scenario therefore demands the usage of Siddha medicines as preventive, therapeutic as well as for Post Covid immunity.

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