

## Case study

# Documentation, Clinical Validation, Safety Assessment and Efficacy of Siddha treatment in COVID 19 SARS-CoV-2: A case series

### ABSTRACT

**Aims:** To evaluate clinical validation, safety assessment and efficacy of Siddha line of treatment in COVID-19 patients.

**Study design:** An open labelled, interventional, prospective cohort study

**Place and Duration of Study:** It was conducted in Covid ward, Kokila Siddha Hospital and Research centre, Madurai between June and Aug 2021.

**Methodology:** Among 22 patients registered in the trial 5 (22.72%) developed breathing difficulty and were treated with oxygen support, 10 (45.5%) were male, 12 (54.5%) were female. The maximum age of the patient was 77 whereas the minimum age was 25. At the time of admission, maximum 9 (40.9 %) patients had fever, followed by dry cough 18 (81.8%), dyspnea 8 (36.4%), malaise 16 (72.7%), anorexia 8 (36.4%), headache 4 (18.2%), Type - 2 Diabetes Mellitus 5 (23%), and 2 (9%) patients had hypertension as comorbidity. Hematology, LFT, RFT, D-Dimer, PTT, CRP were taken before and after 5 days of treatment.

**Results:** The mean hospital stay was 7 days. The patients were discharged on a minimum of 4th day and a maximum of 16<sup>th</sup> day. The mean hospital stay for hypoxic patients was 10 days. Paired sample test analysis has been carried out to find a significant difference in the counts of lymphocytes, ESR, CRP and PTT after the administration of the intervention.

**Conclusion:** The medications chosen according to the pathology of *Kaba suram* and administered starting on the day of their admission, depending on the stage and severity of the infection. Patients are also provided with appropriate food, exercise and external therapy as needed in conjunction with their medications. It has been seen that the patient's condition has not deteriorated further. As a result, it is reasonable to conclude that the treatment of COVID-19 with the Siddha medications prescribed stopped the disease from progressing to a more critical stage.

**Keywords:** *Kabasuram, Kabasurakudineer, Brammanantha bairavam, Vazhalai vaanguthal, Vitex negundo*

### 1. INTRODUCTION

SARS CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2) infection became a global public health threat and had a large economic impact. Since December 2019, when the coronavirus infection 2019 (COVID-19) was found, approximately 100 million confirmed cases and 2 million deaths have been reported worldwide [1]. However, the majority of individuals with COVID19 experience mild to moderate symptoms, and only approximately 10-15 percent develop severe illness [2,3]. There are currently no medications available due to the virus's novelty and broad clinical reach. In the absence of viable treatments, traditional remedies were used as an integrated treatment for COVID-19, as they had been for other infectious diseases in the past [4].

Traditional Indian medicines include Ayurveda, Yoga, Naturopathy, Unani, Siddha, Sowa-Rigpa, and Homoeopathy (AYUSH). The Siddha system of medicine is largely practised in India's southern states and Tamil-speaking countries around the world. The Ministry of AYUSH of India has provided therapeutic instructions for AYUSH practitioners to prevent and manage COVID-19, including the use of *Kabasura Kudineer* (KSK), a polyherbal Siddha formulation [5,6].

**Suram (pyrexia/fever) is one of Siddha literature's 64 types of diseases.** According to Siddha philosophy, *Vatham* is responsible for conception and creation, *Pitham* humour is responsible for disease prevention, and *Kabam* is responsible for destruction, as stated in the verses of Siddhar *Theran*: "*Vaathamai padaithu pitha vanniyai kaathu sethuma seethamai thudaithu*" [7]. *Suram* is characterized according to the impacted *Mukcuttram* (*Vatham*, *Pitham*, and *Kabam*), and the associated unhealthy food and lifestyle. *Kaba Suram* is believed to occur as a result of *kabam's* exacerbated humour being far stronger than normal, creating an ideal habitat for any respiratory infection [8,9]. Its clinical implications have been described in a few publications, including *Theran karisal*, *Suravagadam*, and *Yugi chinthamani*. *Kabam's* exaggerated nature takes up residence in locations other than its own in the body (*Vaetrunilei Valarchi*). *Kaba Suram* is mostly a result of *Kabam* variants. *Kabam thannilai sirapurum kaalam* refers to the seasonal aggravation that happens in *Kabam* between *Karthigai* and *Masi* (November to February) [10].

*Kaba suram* has been classified into three stages,  
 Stage I (Asymptomatic & Mild cases)  
 Stage II (Moderate cases with Pneumonia)  
 Stage III (Critical cases)

### 1.1 Stage I

Around 81 percent of COVID-19 cases have minor symptoms that could include non-pneumonia or mild pneumonia. The Tamil linguistic purism of the Siddha literature on *Kaba Suram* classified these symptoms as *Suram* (Fever), *Irumal* (Cough), *Thondai nothal* (Sore throat) and *Kozhai kakkal* (Expectoration). *Suravaagadam's* literature includes *kalaippu* (malaise), *vali* (muscle soreness), and *Vayiru kazhidhal* (diarrhoea) [11]. The increase in *Kaba* humour causes *Thondai nothal* (sore throat), *Irumal* (cough), and *Kozhai kakkal* (expectoration), which are likewise symptoms of COVID-19's basic stage [12]. **Diarrhea** arises as a result of a weakened protective immune response, allowing infection to enter, particularly in organs with high Angiotensin-converting enzyme 2 genes (ACE2) expression. This induces **diarrhoea** by causing inflammation in the digestive tract [13]. This data reinforces the Siddha pathophysiological idea of *kaba* humour aggravation in the colon (*Kudal thannil seetham*), which is the primary cause of fever and disease progression in a stepwise manner. This stage is similar to the symptoms of an increase in *Kabam* in the chest area causing *Moochu thinaral* (Dyspnoea), *Mael moochu*, *Oon kollaamai* (loss of appetite), *Thookkaminmai* (Insomnia), and *Kalaithu pothal* (weariness) as described in the scriptures *Suravaagadam* and *Theran karisal*.

### 1.2 Stage II

This severe stage of COVID-19 can be well correlated with the persistent severe increase of *Kabam* in the chest area, resulting in *Mael moochu* (Severe dyspnoea), *Naakku mugam veluthal* (Pallor of tongue and face) as indicated in the text *Yugimunivar vaithya chintamani*, *viyarvai* (profuse sweat), *udal veenkuthal* (Anasarca). Due to a high body temperature, *viyarvai* (prolific sweating) can occur [14]. Hypercapnia can cause a reduction in carbon dioxide diffusion, resulting in increased perspiration and vasodilation [15]. Pallor of the tongue and face, as indicated in Siddha writings, could be caused by ARDS, which is characterised by inadequate oxygenation resulting in hypoxia and can also manifest as central or peripheral cyanosis as a result of hypoxia. As indicated in *Theran Karisal*, *udal veenguthal* (Anasarca) can arise as a result of pulmonary oedema, renal dysfunction, and decreased output [16].

### 1.3 Stage III

*Sanni* (Delirious stage) has been described in Siddha writings as the final stage of *Kaba suram* (Covid 19) because of the dramatic release of proinflammatory mediators. *Acham*, *Manavetrumai* (Emotional disturbances of fear and depression), *Athatti pesuthal*, *Vaay Kularal* (Irrelevant speech, agitation) and *Thannilai ariyaamai* (Impaired consciousness) are all symptoms of, *kaba suram* which affects the three humours *Vatham*, *Pitham* and *Kabam*, which are responsible for the well-being of an individual. Even while hiccups (*Vikkaal*) appear to be an insignificant symptom, they may be the most common sign of pneumonia [17]. Symptoms such as *Naachuvai ariyaamai* (loss of smell/altered taste), *vaay thuvarthal*, *kadhu iraidhal* and *kadhu kaelamai* (Auditory deficits) are described in detail in the Siddha literature on *Kaba Suram*.

## 2. AIM AND OBJECTIVE

To evaluate clinical validation, safety assessment and efficacy of Siddha line of treatment in COVID-19 patients.

## 3. MATERIALS AND METHODS

### 3.1 Study type

Interventional, prospective cohort study

### 3.2 Purpose

Treatment

### 3.3 Masking

Open labelled

### 3.4 Selection Criteria

The patients experience mild to moderate symptoms such as fever, body ache, dry cough, throat soreness, dizziness, etc. Those who tested positive for COVID-19 and were willing to engage in the study were chosen for the current study.

### 3.5 Inclusion Criteria

- All patients included in this study were diagnosed for COVID-19 based on the World Health Organization (WHO) guidelines those who had an influenza-like illness and were SARS-CoV-2 Reverse transcription-polymerase chain reaction (RT-PCR) positive in a throat swab.
- Both male and female
- Patients belonging to age 12 years and above
- Patients who are willing to participate in the study

### 3.6 Exclusion Criteria

- Patients with high-grade fever
- Patients with age below 12 years
- SPO<sub>2</sub> < 92%
- Chest pain or discomfort on deep breath
- Difficulty in breathing
- Patients having uncontrolled HT or DM, Bronchial asthma, CKD or liver diseases.
- Patients who require intensive care/ventilator

## 4. MEDICINE PROTOCOL

### 4.1. Vazhalai Vaanguthal (expectoration)

*Vazhalai Vaanguthal* (expectoration) can be performed in the morning after brushing the teeth. It is accomplished through the use of *Karisalai Nei*. *Karisalai nei* is made by combining equal amounts of leaf juice from *Manjal karisalai* (*Wedelia calendulacea*) with cow's ghee in a mixing bowl and boiling until smooth. For 12 repetitions or until the phlegm has been expelled, apply 1-2 gram on the thumb finger and insert, smear, and rotate on the upper soft palate, softly touching the uvula. It is done 1-3 times a day for three days. The phlegm that has gathered is spit out to prevent and remove virus development. For the first three days, it is usually done here early in the morning. The administration of this therapy, on the other hand, will be determined following the patient's health status.

### 4.2 Vedhu and Otrada pottani (inhalation and fomentation)

*Vedhu* is process of steam inhalation after boiling the leaves of the *notchi* plant (*Vitex negundo*). It is done in about 3-5 days. Further the leaves are rolled into an *otrada pottanam* (bundle fomentation) and applied

to the chest and back to relieve chest congestion and prevent it from occurring. It is performed once or twice a day for seven days, depending on the severity of the congestion in the lungs.

#### 4.3 Diet and Drug Regimen

The following table (Table 1) contains consists of the diet and drug followed in the In-Patient ward, Kokila Siddha Hospital to the covid patients during the hospital stay.

**Table 1. Diet and medication chart**

Time	Diet and Drug
6.30 am	<i>Vazhalai Vaanguthal</i> and Yoga
7.00 am	<i>vedhu</i> (steam inhalation) and <i>otrada pottani</i> (bundle fomentation) using <i>Notchi</i> leaves
7.30 am	<i>Nilavembu kudineer</i>
8.00 am	Idiappam or Idli
8.30 pm	<i>Brammanantha bairava matthirai</i> , <i>Adhathodai manapagu</i> , <i>Thaleesadhi chooranam</i> , <i>Swasakudori mathirai</i>
10.30 am	Fruit Juice or Salad
12.00 noon	<i>Chukku</i> Decoction + <i>Peyan</i> or <i>Sirumalai vazhaipazham</i> (banana)
1.30 pm	Rice or <i>Karunkuruvai</i> or Barley <i>Kanji</i> with pepper gravey and pepper <i>rasam</i> or <i>panchamutti kanji</i> or <i>chukku mudichu kanji</i>
2.00 pm	<i>Vasandhakupumagaram mathirai</i>
3.00 pm	Vegetable Juice or Soup
5.00 pm	Paruppu sundal (boiled lentils)
6.00 pm	<i>Kabhasura kudineer</i>
7.00 pm	Idli or Utthappam (without oil)
7.30 pm	<i>Brammanantha bairava matthirai</i> , <i>Adhathodai manapagu</i> , <i>Thaleesadhi chooranam</i> , <i>Swasakudori mathirai</i> , <i>Kasthuri karuppu</i>
8.00 pm	<i>Thiripala churanam</i> or <i>Asta churanam</i> 2 gram with hot water

#### 4.4 Internal medicine

The treatment protocol for the patients includes primary and secondary drugs. The primary drug (Table 2) was used for all the patients suffering from SARS-CoV-2 infection. It includes,

1. *Thaleesadhi chooranam*
2. *Nilavembu kudineer*
3. *Vasandhakupumagaram mathirai*
4. *Brahmanandha bairavam mathirai*
5. *Kasthuri karuppu*
6. *Swasakudori mathirai*
7. *Adathodai manappagu*

The secondary drugs are those used as per the symptoms to patients when necessary. The secondary drug (Table 3) was used for the patients suffering from hypoxia, diarrhoea, vomiting and malaise. It includes,

1. *Poorna chandrodhayam*
2. *Gorochanai mathirai*
3. *Thayir chundi chooranam*
4. *Madhulai manappagu*
5. *Naga parpam*

The ingredients and manufacturer of the drugs those used in the study (Table 4) are as follows,

**Table 2. List of primary drugs**

Type	Name	Formula	Dose & Anupanam
Churnam	<i>Thaleesadi churnam</i>	<i>Agasthiyar ratnachurukkum</i>	1 gram with hot water, three times in a day after food

Kudineer	Nialvembu Kudineer	Siddha vaidya thirattu	60 ml, once in a day, before food
Tablet	Vasantha kusumakaram	Siddha vaidya thirattu	100 mg, twice in a day after food
Tablet	Brahmananda bairavam	Siddha vaidya thirattu	100 mg, twice in a day after food
Karuppu	Kasthuri karuppu	Siddha vaidya thirattu	50 mg, twice in a day after food
Manappagu	Adathodai manappagu	Siddha vaidya thirattu	10 ml with hot water, twice in day after food
Tablet	Swasa Kudori	Siddha vaidya thirattu	100 mg, twice in a day after food

**Table 3. List of secondary drugs**

Type	Name	Formula	Dose & Anupanam
Chenduram	Poorna chandirodayam	Therayar karisal 300	50 mg, twice in a day after food
Tablet	Gorojanai mathirai	Agasthiyar Ratna churukkam	100 mg, twice in a day after food
Manappagu	Maduali manappagu	Siddha vaidya thirattu	10 ml with hot water, twice in a day after food.
Churnam	Thayirchundi churnam	Siddha vaidya thirattu	2 grams with curd
Parpam	Naaga parpam	Siddha vaidya thirattu	100 mg, twice in day after food

**Table 4. List of ingredients in primary drugs**

Name	Ingredients	Manufacturer
Thaleesadi churnam	Taxus baccata Cinammomum verum Elettaria cardamomum Zingiber officinale Glycyrrizha glabra Ferula foetida Emblica officinalis Saussurea lappa Piper longum Cuminum cyminum Nigella sativa Anethum sowa Piper longum Syzygium aromaticum Myristica fragrans Kr Myristica fragrans Ar Pistacia integrimma Terminalia chebula Terminalia bellerica Nardostachys jatamansi Piper nigrum Cinnamomum wightii Michelia champaca Embelia ribes Cinnamomum tamala Trachyspermum ammi Corriandrum sativum Sugar	The Indian Medicine Practitioners, Co-operative Pharmacy & Stores Ltd., Thiruvanmiyur, Chennai-600041

<i>Nialvembu Kudineer</i>	<i>Andrographis paniculata</i> <i>Vetiveria zizanioides</i> <i>Plectranthus vettiveroides</i> <i>Cyperus rotundus</i> <i>Santalum album</i> <i>Zingiber officinale</i> <i>Piper nigrum</i> <i>Trichosanthes cucumerina</i> <i>Mollugo cerviana</i>	Raja Sidhaa Marundagam, 3/1A, Tharumathupatti, Kappalur, Madurai-625008
Vasanthakusumakaram	Purified mercuric sulphide Purified borax Purified sulphur <i>Piper longum</i> <i>Saussurea costus</i> <i>Anacyclus pyrethrum</i> <i>Glycyrrhiza glabra</i> <i>Acacia Arabica</i> gum <i>Cinnamomum camphora</i> <i>Crocus sativus</i> Ginger juice	The Indian Medicine Practitioners, Co-operative Pharmacy & Stores Ltd., Thiruvanniyur, Chennai-600041
Brahmananda bairavam	Purified sulphur Purified red orpiment Purified yellow orpiment <i>Aconitum Ferox</i> Rt. <i>Zingiber officinale</i> Rz Purified cinnabar Purified borax	The Indian Medicine Practitioners, Co-operative Pharmacy & Stores Ltd., Thiruvanniyur, Chennai-600041
Kasthuri karuppu	<i>Moschus moschiferous</i> <i>Cinnamomum camphora</i> <i>Bos indicus</i> <i>Crocus sativus</i> Purified Mercury Purified Sulphur Purified Natural Mercuric Sulphide Purified Mercurous Chloride Purified Artificial Mercuric Sulfide Purified Arsenic trisulphide Purified Arsenic disulphide <i>Piper longum</i> <i>Trachyspermum ammi</i>	The Indian Medicine Practitioners, Co-operative Pharmacy & Stores Ltd., Thiruvanniyur, Chennai-600041
Adathodai manappagu	<i>Adathoda vasika</i> <i>Saccharum officinarum</i>	Raja Sidhaa Marundagam, 3/1A, Tharumathupatti, Kappalur, Madurai-625008
Swasa Kudori	<i>Calotropis gigantea</i> flowers <i>Piper nigrum</i>	The Indian Medicine Practitioners, Co-operative Pharmacy & Stores Ltd., Thiruvanniyur, Chennai-600041

**Table 5. List of ingredients in secondary drugs**

Name	Ingredients	Manufacturer
<i>Poorna chandrodhayam</i>	Purified gold Purified mercury Purified sulphur <i>Gossypium arboreum</i> flower juice <i>Musa paradisiaca</i> stem juice	The Indian Medicine Practitioners, Co-operative Pharmacy & Stores Ltd., Thiruvanniyur, Chennai- 600041

<i>Gorochanai mathirai</i>	Bezoar of cow <i>Crocus sativus</i> stamens <i>Cinnamomum camphora</i> <i>Myristica fragrans</i> nut <i>Syzygium aromaticum</i> flower buds <i>Elettaria cardamomum</i> fruits <i>Saussurea costus</i> <i>Anacyclus pyrethrum</i> Purified mercury chloride Purified mercury sulphide <i>Mica parpam</i> <i>Santalum album</i> wood decoction <i>Michelia champaca</i> flower decoction <i>Crocus sativus</i> flower decoction	The Indian Practitioners, Pharmacy & Thiruvanmiyur, 600041	Medicine Co-operative Stores Ltd., Chennai-
<i>Thayir chundi chooranam</i>	Sodium chloride impura Glass salt Alkaline Earth salt Sodium chloride Sochal salt Dried <i>Zingiber officinale</i> Cow's curd sour	The Indian Practitioners, Pharmacy & Thiruvanmiyur, 600041	Medicine Co-operative Stores Ltd., Chennai-
<i>Madhulai manappagu</i>	<i>Punica granatum</i> <i>rose damascene</i> Honey <i>Saccharum officinarum</i>	The Indian Practitioners, Pharmacy & Thiruvanmiyur, 600041	Medicine Co-operative Stores Ltd., Chennai-
<i>Naga parpam</i>	Purified zinc <i>Wedelia calendulacea</i> leaf juice <i>Aloe vera</i> pulp	The Indian Practitioners, Pharmacy & Thiruvanmiyur, 600041	Medicine Co-operative Stores Ltd., Chennai-

## 5. CONDITION ON DISCHARGE

### 5.1 Laboratory investigations

The laboratory investigations like haematology, liver function test, renal function test, D-Dimer, PTT, CRP were taken before discharge to assess the prognosis.

### 5.2 A 6-minute walk test

A 6-minute walk test is a simple clinical examination that has been used for many years to assess cardiopulmonary exercise tolerance. This test is used to uncover hypoxia that has been concealed. A pulse oximeter is affixed to the patient's finger, and he is instructed to walk about the boundaries of his room for 6 minutes constantly. The slight decrease in saturation below 94 per cent, or an absolute decrease of more than 3 per cent to 5 per cent, or the sensation of being uncomfortable (lightheaded, short of breath) while doing the test or after six minutes are all considered significant findings in this study. These patients are labelled as positive for the 6-minute walk test.

Assessment of general health condition, laboratory investigations, 6-minute walk test are done for all the patients before discharge.

## 5. OBSERVATION

The study was conducted in Covid ward, Kokila Siddha hospital and research centre, Madurai. Totally 22 patients who were tested covid 19 positive through RT-PCR were included in the study. Out of those all 22 patients completed the trial and were cured successfully whereas 5 patients (3 female and 2 male patients) developed breathing difficulty with low-level SPO<sub>2</sub> on the 2<sup>nd</sup> day of the treatment and were treated with oxygen support.

Out of the registered patients, 10 (45.5%) were male followed by female 12 (54.5%) (Fig.1). The maximum age of the patient was 77 years whereas the minimum age was 25 years. At the time of admission, maximum 9 (40.9 %) patients had fever (average temperature-100 F), followed by dry cough 18 (81.8%) patients, dyspnea 8 (36.4%) patients, malaise 16 (72.7%) patients, anorexia 8 (36.4%) patients and headache 4 (18.2%) patients (Fig. 2). Sore throat, loose motion and nausea, each was found in 1 (4.5%) patient. In these recruited patients 5 (23%) patients had Type - 2 Diabetes Mellitus and 2 (9%) patients had hypertension as comorbidity.

At the time of admission, the mean and median systolic pressure was 128 and 130 respectively which ranges between 90 to 170mg/dl. The mean and median diastolic pressure was 70 and 80 respectively which ranges between 60 to 100mg/dl (Fig. 3).

The mean hospital stay for the patients was 7 days. The patients were discharged on a minimum of 4th day and a maximum of 16<sup>th</sup> day (Fig. 4). The mean hospital stay for hypoxic patients was 10 days.

The laboratory investigations like haematology, liver function test, renal function test, D-Dimer, PTT, CRP were taken during the time of admission and repeated after 5 days of treatment. Paired sample test analysis has been carried out to find the significance. However, there was a significant difference among patients in the counts of total lymphocytes count, ESR (60min), CRP and Prothrombin time after the administration of the intervention.

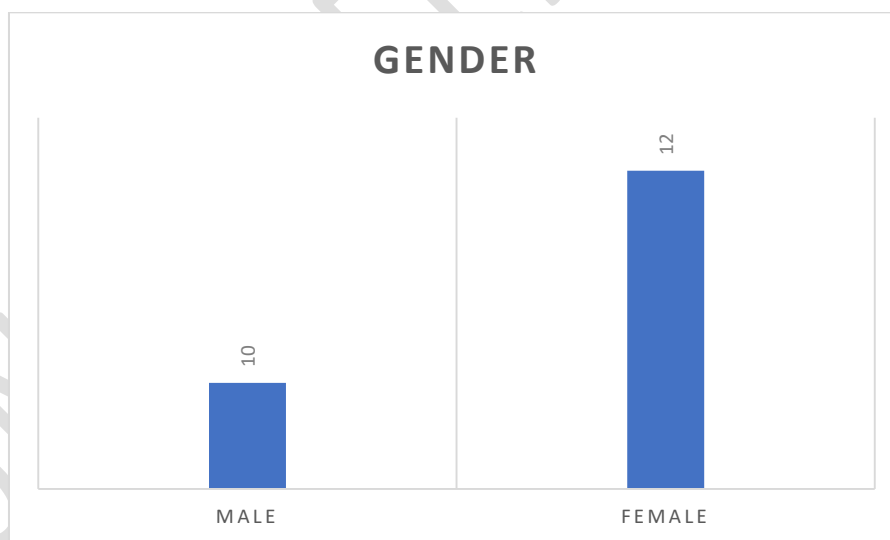
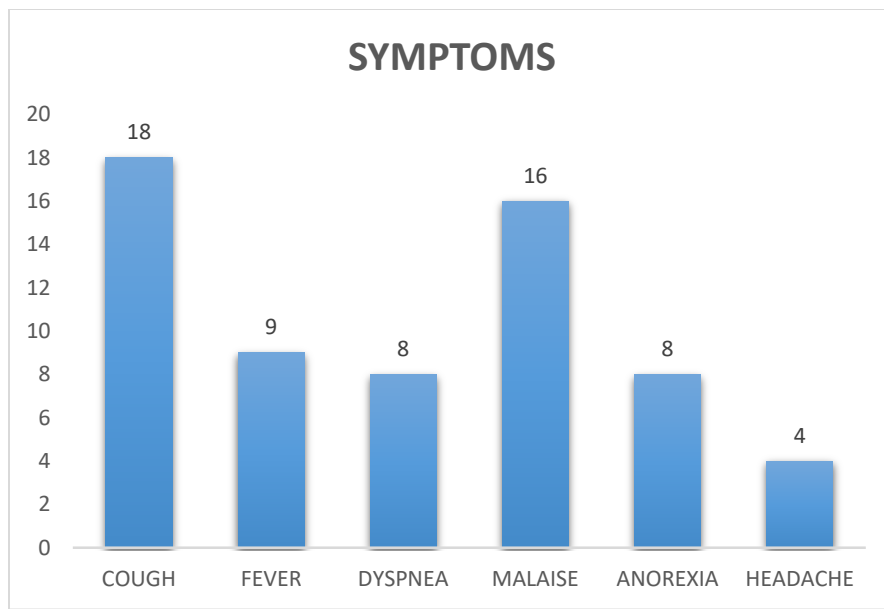
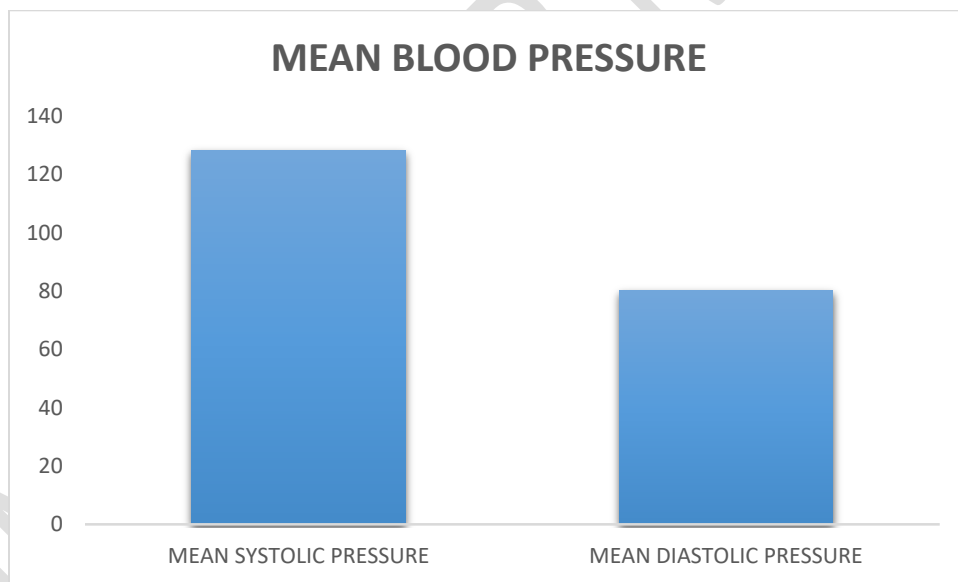


Fig. 1. Pictorial representation of Gender participated in the study



**Fig. 2. Symptoms present during the time of admission.**



**Fig. 3. Mean systolic and diastolic pressure during the time of admission**

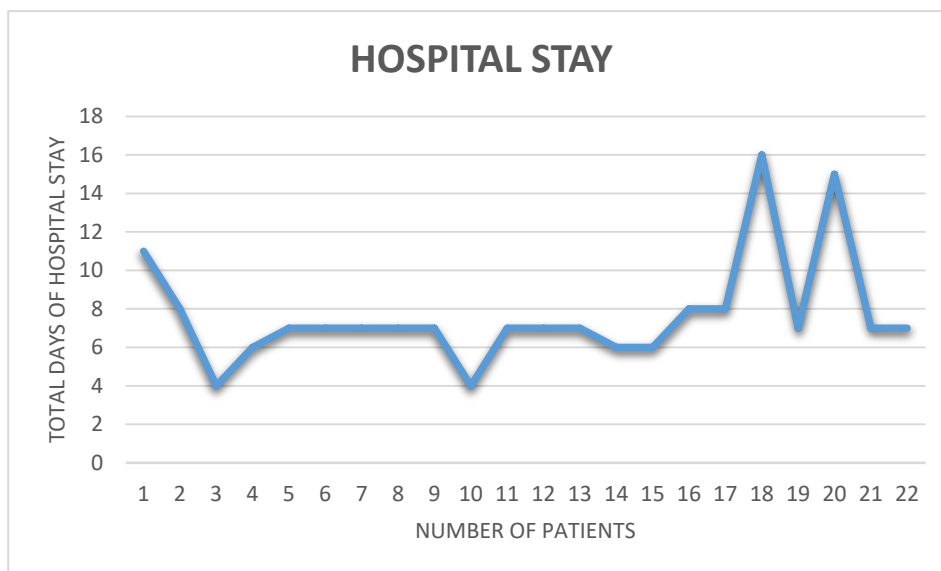


Fig. 4 Total number of hospital stays

Symptoms	Fever	Cough	Dyspnea	Fatigue	Anosmia	Sore throat	Vomiting	Diarrhoea	Oral ulcer	Insomnia
Day1	4	3	4	3	2	1	1	-	-	1
Day2	4	3	4	3	2	2	1	1	-	-
Day3	1	1	2	1	1		-	1	-	1
Day4	1	1	2	-		1	-	1	1	2
Day5	-	-	1	-			-		1	2
Day6	1	-	1	1			-		1	3
Day7	-	-	-	-			-			1
Day8	1	-	-	-			-			1

Day9		1	1	-			1			-
Day10		-	2	1			2			1
Day11		-	1	1						
Day12		-	-							
Day13		1	1							
Day14			1							
Day15										
Day16										
Day17										

\*[The black boxes denote the vanish of symptoms and the numbers in the white box denote the number of cases showed symptoms]

Table 6. Day wise symptom tracker

## 6. ADVERSE DRUG REACTIONS

No significant adverse reactions were recorded during the hospital stay. None was withdrawn from the treatment due to treatment-related discomfort or any adverse reactions.

## 7. CONCLUSION

The pathology of *Kaba suram* has been described stage by stage in this study, in accordance with the Siddha literature, and the results that have been previously published. The illness has been traced back to its source (*Noi mudhal naada*), and ~~the infection diagnosis a diagnosis has been made of the infection.~~ The medications have been carefully chosen and administered to ~~the~~ patients ~~in the first day of admission starting on the day of their admission,~~ depending on the stage and severity of ~~the~~ infection. Patients ~~were are~~ also provided with appropriate food, exercise, and external therapy as needed in conjunction with their medications. It has been seen that the patient conditions ~~have~~ not deteriorated further. As a result, it is reasonable to conclude that the treatment of COVID-19 with the Siddha medications prescribed stopped the disease from progressing to a more critical stage. Even though ~~with the~~ patients ~~who~~ had a severe cough and a fever ~~higher of more~~ than 39.1 ° Celsius, the patient did not worsen or become breathless. India ~~is in a unique position to~~ utilise the vast amount of knowledge contained within the Indian Systems of Medicine to heal this sickness and bring the epidemic under control. The opportunity to demonstrate the efficacy of Siddha is also extremely valuable at this stage.

## 8. ETHICAL APPROVAL

The trial has received approval from Institutional Ethical Committee of Kokila Siddha Hospital and Research Centre. The trial is registered in Clinical Trial Registry of India and the registration number is CTRI/2021/06/034145. All authors declare that a written informed consent was obtained from the patient

or other approved parties for publication of this case report and accompanying images. A copy of the written consent is available for review.

**NOTE:**

**The study highlights the efficacy of "Siddha" which is an ancient tradition, used in some parts of India. This ancient concept should be carefully evaluated in the light of modern medical science and can be utilized partially if found suitable.**

**COMPETING INTERESTS DISCLAIMER:**

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

**11. REFERENCES**

1. World Health Organization. WHO Coronavirus Disease (COVID-19) Dashboard. [Accessed on 20 February 2021]. Available from: <https://covid19.who.int/>
2. World Health Organization. What we know about the Long-term effects of COVID-19. [Accessed on 20 February 2021]. Available from: [https://www.who.int/docs/defaultsource/coronaviruse/risk-comms-updates/update-36-long-termsymptoms.pdf?sfvrsn=5d3789a6\\_2](https://www.who.int/docs/defaultsource/coronaviruse/risk-comms-updates/update-36-long-termsymptoms.pdf?sfvrsn=5d3789a6_2)
3. Alschuler L, Chiasson AM, Horwitz R, Sternberg E, Crocker R, Weil A, Maizes V. Integrative medicine considerations for convalescence from mild-to-moderate COVID-19 disease. *Explore*. 2020 Dec 23.
4. Lee MS, Song E. Integrative medicine for COVID-19: researches and evidence. *Integrative Medicine Research*. 2020 Aug 4. 2020 Sep; 9(3)
5. Ministry of AYUSH, [Accessed on Jan 25, 2021]. Available from: <https://www.ayush.gov.in/ayush-guidelines.html>
6. Government of Tamil Nadu. Directorate of Public Health & Preventive Medicine, [Accessed Jan 25, 2021]. Available from: <https://www.tnhealth.org/dphfacts/chikungunya.htm>.
7. Kuppusamy muthaliyar K.N, Siddha maruthuvam pothu (Tamil). 6th ed. Chennai: Department of Indian medicine and Homeopathy publications; 2004.27-30 p.
8. Vengatarajan S, Dhanvanthriyaithyam of -Part1(Tamil) of Dhanvanthri.1st ed.Thanjavore; Thanjaisaraswathi Mahal noolagam; 1884, 65-95 p.
9. Vengatarajan S. Agathiyarendayiram(Tamil) of Agathiyar.1st ed. Thanjavur; Thanjavur Saraswathi Mahal publication; 2005.51-159p.
10. Thurairajan. Noi Illa Neri. Siddha Hygiene and Preventive medicine. Chennai; Authority of the Government of Madras; 1951.55-60 p.
11. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020;395;497–506 p.
12. Guo YR, Cao QD, Hong ZS, Tan Y.Y, Chen S.D, Jin HJ, et al. The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak – an update on the status. *Mil. Med. Res* 2020; 7:11p.
13. Liang W, Feng Z, Rao S, Xiao C, Xue X, Lin Z et al.Diarrhoea may be underestimated: a missing link in 2019 novel coronavirus. *Gut* epub ahead of print. *Gut* 2020; 0;1–3 p.
14. Sriwijitalai W, Wiwanitkit V. Hearing loss and COVID-19: A note. *Am J Otolaryngol*. 2020: 102473. doi: 10.1016/j.amjoto.2020.102473
15. Srikantha Arunachalam. Treatise on Ayurveda. 1st ed. Nugegoda, Sri Lanka; Vijitha Yapa Publications, Piyasiri printing system; 2004.46-50p.
16. George CF. Perspectives on the management of insomnia in patients with chronic respiratory disorders. *Sleep* 2000; 23:31-5 p.
17. Karakonstantis S, Pitsigavdaki S, Korela D, Galani D. Lower lobe pneumonia presenting as singultus (hiccups). *Caspian J Intern Med* 2018; 9(4):403-405 p.