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A Single Case Study on COVID-19 with Ayurvedic Management

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ABSTRACT

Introduction: We are presenting a case of severe Covid-19 disease with several comorbidities such as Diabetes Mellitus Type 2, Rheumatoid arthritis, Chronic pulmonary obstructive disorder (COPD). Here is showing the day-to-day stepwise treatment of that patient till the recovery.

Aims: The primary aim of this study is to create an ayurvedic medicine protocol for the treatment of Covid-19 and simultaneously, to document the effects of Ayurvedic medications in the treatment and prevention of COVID-9 and.

Case Report: This is the case of a 45-year-old woman from Kolkata, India, with symptoms of sore throat, body ache, fever, cough, breathing difficulty, loss of taste and smell. She had a history of COPD, Type 2 DM, RA and surgical history of hysterectomy a few years back. The treatment was started before the report was come as covid positive according to her presenting symptoms. After 21 days of her treatment, she became covid negative.

Discussion: This is a case study, based on the management of COVID-19 daily. The role of Ayurvedic herbal and herbal-mineral drugs in the treatment and prevention of COVID-19 has been well established in this study.

Conclusion: The management of the patient of Covid-19 through Ayurveda is categorically analyzed and mentioned here and also step by step of her improvements are also present here. Some compound herbomineral medicines and pure herbal medicines are used in this treatment according to the Ayurvedic text Charak and Susruta Samhita. The active molecules of herbs used in the treatment are also verified with their action on Covid -19. This case study of covid 19 will promote further research and help to make an ayurvedic treatment protocol on Covid 19.

Key Words: Abhyantarogamarga, Aswagandha, Ayurveda, Ayushkwath, COVID-19, Guduchi, Mahasudarshanvati

INTRODUCTION

At the beginning of 2020, a new novel SARS-CoV-2 viral disease with flu or influenza-like symptoms has introduced a global pandemic causing a mammoth human loss. The epicentre of the disease is believed to be the Wuhan province of China.¹ The zoonotic transmission of the contagious disease quickly transformed its course into a human-to-human transmission, resulting in the rapid spread of the disease in a very short period.² On 30th January 2020, the declaration of a public health emergency and temporary recommendations by the Director-General of the World Health Organization (WHO) emerged as a global concern on the pandemic issue.^{3,4} There were so many medicinal plants in Ayurveda that have antiviral activities. Some of them if proven their efficacy for

controlling the SARS-CoV2 virus that will be a summum bonum for the sufferings humanity.

Ayurveda means not only the knowledge of life but also it describes the way of life. It originated in India more than five thousand years back. The description of the medicinal plants is persisting since the period of Vedas and was later found in the several Nighantus of Ayurveda.⁵ Many herbs in Ayurveda have antibacterial, antifungal, and antiviral properties that have been revalidated and confirmed by modern scientists in various studies. In day-to-day practise or home remedies, we used these plants from generation after generation for the management of several viral diseases, such as for the management of viral fever or common cold.

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There has been a phenomenal increase in the demand for specialized therapies of Ayurveda. Many of the treatment failure patients of the conventional system of medicine are coming to be treated at the different institutes of Ayurveda with a hope of recovery in this ancient system of medicine. The present single-case study will throw light on the ayurvedic management of clinical conditions of a corona positive patient.

Case Presentation

Patient information

A 45 years patient is a Staff Nurse in the Government hospital of Kolkata, West Bengal, India. She is well built, with a height of 153 cm and weighing 65 kg.

Present medical history

The patient on the first day of falling ill with a runny nose, fever, sore throat, mild breathing difficulty contacted an Ayurvedic physician of her hospital and started on ayurvedic medication for her complaints. She self-quarantined on the suspicion of the possibility of a COVID-19 infection.

Past medical history

She had several histories of certain diseases and complications. She had a long history of COPD (Chronic Obstructive Pulmonary Disorder), Diabetes mellitus Type-2 and Rheumatoid Arthritis. She had taken Hydroxychloroquine 300– 1 Tab OD, Sulfasalazine 500– 1 Tab OD, Deflazacort Tab 6 mg (corticosteroid) (not taken regularly) for Rheumatoid Arthritis. She had taken Montelukast Levocetirizine combination twice daily, Levosalbutamol inhaler twice daily and Formoterol fumarate and Budesonide inhaler (used in severe breathing problems) in COPD and for Diabetes mellitus Type-2, she had used Metformin 500 mg twice daily. Now, she has shifted to ayurvedic treatment for Rheumatoid Arthritis for the last 2 years. From 2019, she had not taken any medicine other than ayurvedic medication for Rheumatoid Arthritis.

Pathophysiology

In his present illness, she was presenting the symptoms like *jwara* (fever), *swasa* (breathing difficulty) and *kasa* (coughing). These three main symptoms of COVID-19 belong to *Abhyantarogamargais* one of the three *rogamargas* or “pathways of disease” as described in *AstangaHridayam*. *Pranavahasrotodushti* (*vimana sthana* 5/7) is found in this disease, as there is severe respiratory distress associated with other symptoms, causing death sometimes.⁶

Based on that concept, COVID 19 can be correlated with *Agantujasannipatajwara*, which is of *Vata-Kapha* predominance (*chikitsasthana*, 3/92, 3/128-129). This *jwara* is classified as being *agantu* (external) caused by *bhoota Abhishanga* (*chikitsasthana* 3/111, 3/114), which aggravates all

three doshas. As all three *doshas* are aggravated, it may also be termed as *sannipata*.⁶

Diagnosis

In this disease, the diagnosis was first done based on her symptoms, signs and season. But the final diagnosis was done by RT-PCR test for SARS-CoV-2.

Etiology

COVID-19 is a highly infectious disease, caused by SARS-CoV2. According to *Susruta Samhita: NidanaSthana*, 5th chapter:

The infectious diseases can be transmitted from one to another through sneezing, coughing, touching, eating with the infected one in the same dish, lying in the same bed and contact with clothes, ornaments and cosmetics.

Therapeutic intervention

Medicines, diet, and regimen are the three fundamentals of therapeutic intervention. The patient had been self-quarantined from the first day of fever. Complete medication consists of two stages of her condition namely fever and convalescence. Details of all the date wise symptoms, Test Results, treatment, diet and regimen are given in a tabular form. (Table 1).

DISCUSSION

This is a case study, based on the management of COVID-19 daily. The role of Ayurvedic herbal and herbs-mineral drugs in the treatment and prevention of COVID-19 has been well established in this study.

Limitation

This is a single case study but it may invite a larger sample of studies before we will develop a standard protocol for the treatment of COVID-19. The treatment was done on telephonic discussion and video conferencing. There was no chance to examine the patient physically.

Strengths

It was observed that the patient condition did not deteriorate with the ayurvedic management. Even all symptoms of the patient were subsided gradually one by one.

The COVID-19 diseases may resemble the *vatakafaja* and *sannipataja jwara*. *Mrityunjay Ras*, *MahaSudersan*, *SanjivaniVati* are commonly used in Ayurveda for the treatment of *vataja* and *sannipataja jwara*. So, these medicines worked nicely. *Guduchi* (*Tinospora cordifolia*) and *bhuinamla* (*Pylanthusniruri*) have been proved for their immunomodulatory and antiviral activities respectively. So, these herbs were used for the treatment of COVID-19 in this study. *Anu taila* and *Triphalachurna* were used for the regaining of taste and

smell. *Aswagandha* and *Amlaki* contain natural Zinc and Vitamin C along with many other beneficial components were used for the general weakness of the patient. The practice of pranayama for 30 minutes daily was advised for maintaining O₂ saturation level as normal.

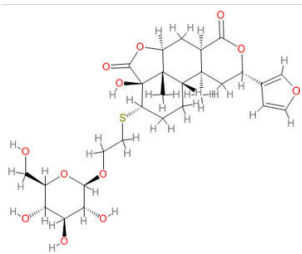
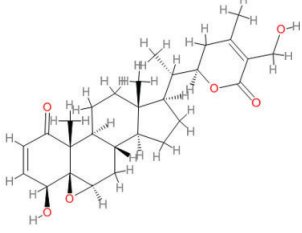
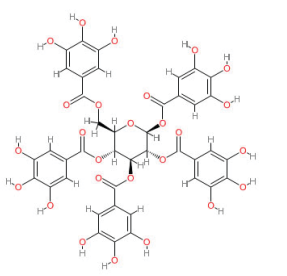
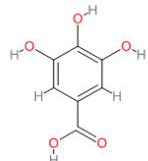
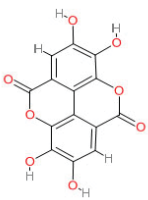
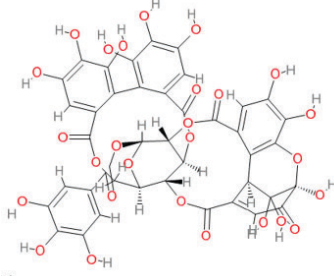
Active principles and mode of action of used medicinal plants

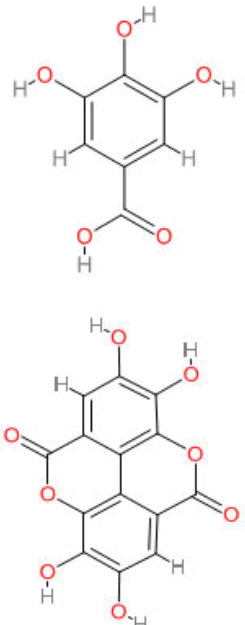
The active principles and probable mode of action of medicinal plants used in this management of the patient of COVID-19 are documented in a tabular form (**Table 2**).

Table 1: Detailed course of the disease

Date	Symptoms	Test/Result	Treatment	Diet	Regimen
24.07.2020	1. Fever 101° F 2. Sore throat	NA	1. Tab <i>Mrityunjayras</i> + Tab <i>Sanjivanivati</i> + Tab <i>Mahasudarsanvati</i> Above all of 1 Tab each twice daily after breakfast and tiffin. 2. <i>Guduchichurna</i> 1 Tsf + <i>Bhuinamla</i> ¼ th Tsf one dose before lunch and dinner. 3. <i>Ayushkwath</i> ½ Tsf with a cup of lukewarm water in the morning and evening.	Non-spicy nutritious diet was advised to take.	1. Pranayam for 30 minutes in the morning 2. Stop sleeping during the day (<i>Divaswapna</i>) and avoid staying up at night (<i>Ratrijagarana</i>)
25.07.2020	1. Fever 102° F 2. Sore throat 3. Mild coughing 4. Mild breathing difficulty	Home test for COVID-19. Nasopharyngeal Test: Real-Time RT-PCR test from Dr. Lal Path Labs (Kolkata Reference Lab) Kolkata. Result: positive for SARS-CoV-2.	1. Same as above 2. <i>Sringadichurna</i> 1 Tsf BD with lukewarm water 3. <i>Sashkutharrasi</i> Tab BD		
26.07.2020 to 03.08.2020	1. Fever and sore throat subsided 2. Occasional Coughing and mild breathing difficulty persist. 3. Loss of smell	NA	Same all medicines continued; Additional treatment for loss of smell: <i>Anu tailamnasya</i> two drops in each nostril, twice daily		
04.08.2020	Same	NA	Same as above except medication of 1 and 2 as of 24 th July 2020		
05.08.2020 to 11.08.2020	All symptoms are subsided except the loss of taste and general weakness.	Advised RT-PCR test for SARS-CoV-2 on 11.08.2020	1. <i>Aswagandhachurna</i> 3 gm BD with a cup of milk. 2. Rinse mouth with <i>Triphalachurna</i> with lukewarm water for 10 minutes twice daily		
12.08.2020 & 13.08.2020	Taste and smell were felt as earlier but general weakness persisting.	RT-PCR test for SARS-CoV-2 was done on 12.08.2020 and detected negative on 13.08.2020	1. <i>Aswagandha churna</i> 3 gm BD with a cup of lukewarm milk & 2. <i>Amlakichurna</i> 3 gm BD advised to be continued for one month.		

Table 2: Chemical structures, active principles and mode of action of the medicinal plants used in the treatment

Sl. No.	Name of the Medicinal Plant	Parts Used	Active Principle	Possible Structure	PubChem Structure Reference	Mode of Action	Reference
1	<i>Tinospora cordifolia</i> (Willd.) Miers. Trivial Name: Gulancha; Heart-leaved moonseed	Stem	Cordifolide A		CID_102451916	These are the inhibitors of RNA dependent RNA polymerase of Severe Acute Respiratory Syndrome Coronavirus-2.	7
2	<i>Withaniasomnifera</i> (L.) Dunal. Trivial Name: Ashwagandha; Indian ginseng	Root	Withaferin A		CID_265237	It can regulate the consequence of COVID -19 and modulate the Th1/ Th2 dependent immunity in the host. Immunity is also given by increasing the IFN- γ .	8
3	<i>Emblica officinalis</i> Gaertn. Trivial Name: Amla; Amlaki; Indian gooseberry	Fruit	Pentagalloyl glucose		CID_65238	It may be able to prevent the replication of the influenza A virus. It also can increase immunity as well.	9,10
4	<i>Terminalia chebula</i> Retz. Trivial Name: Haritaki; Chebulic Myrobalan	Fruit	a) Gallic Acid		CID_370	It is known for its antiviral properties, and it boosts immunity by increasing neutrophil activity or T-cell and B-cell proliferation and the level of IL-2, IL-10, and TNF- α .	11,12
			b) Ellagic Acid		CID_5281855		
5	<i>Phyllanthus amarus</i> Schumacher & Thonn. Trivial Name: Bhui amla; Bhumi Amla; Carry Me Seed	Whole Plant	Geraniin		CID_3001497	It inhibits the activity of pathogen proteins.	13

Sl. No.	Name of the Medicinal Plant	Parts Used	Active Principle	Possible Structure	PubChem Structure Reference	Mode of Action	Reference
6	Terminalia bellirica (Gaertn.) Roxb. Trivial Name: Baheda; Belliric Myrobalan	Fruit	a) Gallic Acid b) Ellagic Acid		CID_370 CID_5281855	It is known for its antiviral properties, and it boosts immunity by increasing neutrophil activity or T-cell and B-cell proliferation.	^{14,15}

Patient's perspective informed consent

"I am a staff nurse GR-2 under Health and Family Welfare Department, Government of West Bengal. I am a chronic patient of Rheumatoid arthritis and suffering from mild Asthma. Previously, I suffered from Pancreatitis and so I had gone through many surgeries.

My husband (he has no medical problems) developed a fever on 24th July 2020 and I had consulted with Dr D. Ghosh, Superintendent of Viswanath Ayurved Mahavidyalaya and Hospital, Kolkata, India where I have been transferred on February 20. He advised me for home isolation and also for the test of COVID-19 for all of my family members. On 25.07.2020, I and my husband tested positive at Dr Lal Path Lab.

I tried for the COVID test from 21.07.2020 at home because my husband was suffering from a high fever and was very weak and I have a kid also but I was unable to do so till 23/07/2020 then Dr Ghosh helped me with that and finally the test was done on 24/7/2020. We were in home isolation and took treatment from Ayurveda under the advice of Dr Ghosh.

Although I am very new to this stream of treatment (Ayurveda) Dr Ghosh helped me with this Ayurveda and treated us symptomatically. I arranged O₂ inhalation at home because of my asthma. Both of us got various symptoms of COVID and due to my co-morbid diseases, I was very much afraid of the worst. But Dr Ghosh gave me mental assurance and enough courage to me along with this Ayurveda. Gradual-

ly, we were being asymptomatic and my asthma and other complications were vanishing. I was taken aback that Ayurveda can do this! To be honest, we had suffered too much but feel no need for hospitalization because of Dr Ghosh's determination and help for every minor problem. At last, we became cured and tested negative. We both are amazed by the phonic treatment according to our symptoms provided by Dr D. Ghosh. I feel proud as a government staff under health and family welfare for the treatment of Ayurveda. Now, I am trying to convert my treatments from Allopath to Ayurveda, the ancient treatment therapy of India. At last, I again want to thank Dr D. Ghosh for not only his treatment but also for his behaviour and supporting attitude."

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

CONCLUSION

This is a single case study, but this study may give a ray of hope to prepare a standard protocol for the treatment of highly infective COVID-19 disease. But further extensive studies are needed in a larger sample size to develop the standard protocol of Ayurveda for the treatment of the

disease. Future researcher may carry out their research on the ayurvedic line-up treatment based on this clinical case study.

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Statement of Ethics

Ethics approval

This is not a clinical trial and the medicines, used in this treatment are using years together in Ayurveda for treatment of fever of viral or another origin, not new or used for the first time. However, these medicines are evidence-based and this use in treatment needs no ethical clearance according to the research protocol of WHO.

Study approval statement

Not Applicable

Ethical Review Board

Not Applicable.

Consent for Publication of case

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. Written consent of the patient is also submitted to the Journal Site as Supplementary data.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

Conceptualization: [Debasish Ghosh], [Rajdeep Ghosh]; Methodology: [Debasish Ghosh], [Rajdeep Ghosh]; Formal analysis and investigation: [Debasish Ghosh], [Rajdeep Ghosh]; Writing—original draft preparation: [Rajdeep Ghosh], [Debasish Ghosh]; Writing—review and editing: [Joy Sarkar]; Funding acquisition: [N/A]; Resources: [N/A]; Supervision: [Joy Sarkar], [Debasish Ghosh]

Data Availability Statement

All the available data are given in supplementary files.

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