

Multimodal ayurvedic approach in the management of moderate SARS-COV2 infection with co-morbidities – A case report

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ABSTRACT

Introduction: The World Health Organization (WHO) declared COVID-19 a pandemic which has claimed more than 1.4 million lives as of today. This unprecedented period demands greatly for the traditional and native medical systems which are time-tested and holistic. Some of the recent studies have reported severe infection in individuals with comorbidities such as obesity, diabetes mellitus, old age, etc. Ayurveda understands this condition as *Agantuja Jwara of Sannipatika* origin. *Madhumeha* (diabetes mellitus) is basically a disease of depleted *Ojus* (immunity) as per Ayurveda. **Methods:** Here, we report a case of COVID-19 in an elderly overweight patient with diabetes, which was managed successfully with Ayurvedic medicines, diet, lifestyle, yoga, and rejuvenative therapy. **Case Description:** A 70-year-old male consulted our physician through phone call and willfully wanted to take Ayurvedic management for COVID-19. On the 1st day of treatment, the patient complained of fever at 103 F, headache, and severe body ache. Later on, started with a cough, headache, shortness of breath, excessive thirst, etc. Based on the symptom cluster and food-exercise routine, *Kapha* and *Pitta* were the vitiated body humors. **Results:** After thorough Ayurvedic assessment, the patient was administered with *Langhana*, *Pachana* (procedures to improve digestive metabolism), anti-pyretic, and antidiabetic medications followed by yoga and pranayama. The patient was also advised rejuvenative therapy to prevent further post-COVID complications. Quality of Life was assessed with Quality of Life Instrument for Indian Diabetes Patients (QOLID) and EuroQol five-dimensional (EQ-5D). The patient was completely relieved from major symptoms in 4 days and tested negative after 12 days, with considerable improvement in QOL. The case was followed up for 60 days, and no post-COVID symptoms were reported.

Keywords: Ayurveda, COVID-19, diabetes mellitus, EQ-5D, rejuvenative therapy

Introduction

COVID-19 has created great distress and trepidation in the world community. The first few cases during December 2019, initially identified as “Pneumonia of unknown etiology” later turned into a pandemic claiming more than 1.4 million lives as

of today. This unprecedented period demands greatly for the traditional and native medical systems which are time-tested and holistic. There have also been some promising reports by the scientific community supporting the usage of traditional medicine to contain the infection.^[1] Some of the recent studies on the COVID-19 have reported more incidence and severe cases in individuals with comorbidities such as obesity, diabetes mellitus, hypertension, and old age.

People with diabetes had a higher overall risk of infection with a hazard ratio of 2.39 during the H1N1 pandemic. They have impaired phagocytosis by neutrophils, macrophages, and bactericidal activity. People with diabetes and hypertension

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are often treated with angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers, which may lead to increased expression of ACE2, thereby facilitating SARS-CoV-2 uptake and increasing the risk of severe infection.^[2]

Viable hypotheses for the susceptibility of the elderly to COVID-19 include changes to the immune cell repertoire, the epigenome, NAD⁺ levels, inflammasome activity, biological clocks, etc.^[3]

Ayurvedic concept of *Agantuja Jwara*

The description of pandemics and natural disasters in Ayurvedic literature can be found in JANAPADODHWAMSA chapter. As per the texts, pandemics are caused by etiologies which are common to the whole community irrespective of personal actions.

While describing the origin of diseases, Ayurveda mentions the history of *Dakshayajna*, where *Yakshma* (~pathogen) was instructed to inflict fever among the population performing misdeeds. Ayurveda expounds that infection can occur only in those with a previously existing disequilibrium of body humors. The amount of *Dosha* morbidity which is needed for the infliction of the pathogen is greatly dependent on *Vikara Vighata Bhava*^[4] (~ability to resist disease) of the body. This condition of a weaker disease-resistance is inherent to the disease *madhumeha*/diabetes mellitus. The disease by its nature has reduced the excellency of body tissues and less physical strength. This is very evident as *Ojus* (~immunity) is one among the 10 morbid body tissues and is a disease of *Ojakshaya* (~depleted *Ojus*).

The infliction of the pathogen into the body intensifies the humor vitiation leading to a vicious cycle. COVID-19 is mainly an *Agantuja* (~infectious), *Amashayastha* (~disease originating from the gut), *Agnimandyajanya* (~reduced digestive fire) disease. Treatment of any infectious disease is done solely by improving *Ojus*.

According to the latest report by the Centre for Disease Control and Prevention, 54.5% of visits were made to primary care physicians (PCPs) in a year.^[5] COVID-19 being a global pandemic has hit all parts of the world including the remotest places. PCPs are the ones who come most in contact with this population. Patients intend to contact their PCP for initial diagnosis and further referral. In addition to that, PCPs can give greater access to needed services, better quality and focused care, and also may play a role in reducing unnecessary specialist care. Hence, furnishing scientific information about the age-old, time-tested, and therapeutically and economically effective traditional medical systems like Ayurveda would definitely help PCPs provide equitable service to the health seekers, thereby reducing the burden on the single medical system and health care expenditure.

Case Description

A 70-year-old male retired officer hailing from an upper-middle class contacted the consultant physician at All India Institute of

Ayurveda (AIIA) through telephone revealing he has been found positive for COVID-19 through RT-PCR on 22/09/2020 and willingly wanted to be under the supervision of an Ayurvedic doctor and undertake Ayurvedic medicines. Later, he was contacted through video calls, and the case was assessed and managed through virtual media by verbal instructions. The patient reported that he started with mild fever on 19/09/2020 with a temperature at 100.2 F, which gradually increased and reached 103 F in the next 2 days. The patient got tested and found positive for COVID-19 on 22/09/2020. As the patient was elderly, he was advised home isolation under continuous monitoring. On the day of examination, the patient was found to have fever 103F, severe body ache, and headache. His general condition was fair, was conscious, and well oriented to time, place, and person. He was overweight with BMI at 28.5 kg/sq.m (Ht- 1.61 m, Wt- 74 kg). All the components of the general examination were within normal limits. The patient was advised to regularly monitor the vitals 4th hourly and report. On the 1st day of management, BP was 130/85 mm Hg, Pulse 100/min, Heart Rate 100/min, Respiratory rate 22/min. SpO₂ 95% at rest. The patient gave a history of diabetes mellitus for the last 24 years and was under oral hypoglycemic drugs (OHDs) (metformin 500 mg + pioglitazone 30 mg BD) prescribed by a tertiary care Govt allopathic hospital. Latest blood sugar levels (BSLs) showed a fasting BSL 200 mg/dL. The patient also gave a positive family history for diabetes mellitus. Inspection and interrogation were the only possible mode of examination, and he was found normal with respect to systemic examinations.

Based on a 10-fold Ayurvedic patient examination, he was found to have *Pitta-Vata* body constitution, least quality of muscle and body fat, moderate compactness, good mental strength, good adaptability, and moderate physical endurance. The patient was more inclined to take dairy products, bread, and biscuits and was physically active for only 3 days a week. On the 2nd day of consultation, the patient started with a cough, shortness of breath, excessive thirst, two episodes of loose stools, reduced appetite, fatigue, and nasal stuffiness. Based on the symptom cluster and food-exercise routine, *Kapha* and *Pitta* were the vitiated body humors. Quality of life (QOL) was assessed with Quality of Life Instrument for Indian Diabetes Patients (QOLID),^[6] and it was moderately affected. The patient was completely managed by Ayurvedic treatment methods and recovered completely from major symptoms in 4 days and tested negative after 12 days, with no causalities. Post-COVID QOL was assessed with EQ-5D,^[7] visual analog scale (VAS). Timeline, investigations, and daily vital chart of the patient are given in Table 1.

Discussion

As explained previously, SARS-CoV-2 can be understood in Ayurveda as a type of fever with involvement of all three body humors and originating from the gut due to impaired digestive fire. The line of treatment of *Jwara* [Figure 1] was followed, and the patient was advised to take warm, easily digestible food like gruel added with black pepper and cumin. He was advised

Table 1: Daily Vital chart and Investigation																
DAY	Prodomal stage	DAY 0	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13	
DATE	19 Sep	20 Sep	21 Sep	22 Sep 2020	23 Sep	24 Sep	25 Sep	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	1 Oct	2 Oct	3 Oct	4 Oct
RTPCR for SARS COV2			Sample taken	Positive and Medication started												Negative
Ayurvedic Consultation	x	x	x	+	+	+	+	+	+	+	+	+	+	+	+	+
Fever in F (Low/Moderate/High)	100.2	102	103	100.2	99.4	98.6	98.6	x	x	x	x	x	x	x	x	x
Bodyache	-	-	+++	+++	++	++	++	++	+	+	+	+	+	+	+	+
Headache	-	-	+++	+++	++	++	++	++	+	+	+	+	+	+	+	+
Shortness of breath	-	-	-	+	+	+	+	x	x	x	x	x	x	x	x	x
Cough (productive/nonproductive)	-	-	-	++ (P)	+	+	+	+	+	+	+	+	+	+	+	+
Excessive thirst	-	-	-	++	+	+	+	x	x	x	x	x	x	x	x	x
Loose stools	-	-	-	++	+	+	+	x	x	x	x	x	x	x	x	x
Reduced appetite	-	-	-	+++	++	++	++	+	+	+	+	+	+	+	+	+
Nasal stuffiness	-	-	-	++	+	+	+	x	x	x	x	x	x	x	x	x
Fatigue	-	-	-	++	++	++	++	+	+	+	+	+	+	+	+	+
Loss of taste	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x
Loss of smell	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x
SPO ₂ in %	-	-	95	94	96	98	98	98	99	99	99	99	99	99	99	99
BP in mm Hg	-	-	130/85	135/85	130/80	128/80	128/80	120/85	128/80	127/84	130/78	128/82	130/84	124/82	130/80	126/80
Pulse/min	-	-	100	110	98	94	94	84	86	80	80	80	78	78	74	70
Fasting Blood Sugar Level	-	-	200 mg/dL	-	-	-	-	-	-	138 mg/dL	-	-	-	-	118 mg/dl	-
Bowels	Constipated	Constipated	Constipated	Loose, watery and sticky	Watery stools	Normal	Normal	N	N	N	N	N	N	N	N	N
Sleep	-	-	Normal	N	N	N	N	N	N	N	N	N	N	N	N	N
Micturition	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 2: Ayurvedic Drug Dosage and Duration with Adjuvants

Date	Shadangapaniya with Musta	AYUSH-64 with Jeeraka jala	Laxmivilasa Rasa with beetle leaf juice	Nishamalaki churna with Hot water	Sudarshana Churna with hot water	Chandraprabha vati with hot water	Khadiradi vati for chewing	Anutailla nasal drops	Ksheera with Turmeric Ghritabhyasa in evening
22 Sep 2020	20 mL, 3 rd hourly	500 mg 2 tab twice a day after food	-	-	-	-	-	-	-
23 Sep 2020	20 mL, 3 rd hourly	500 mg 2 tab twice a day after food	-	-	-	-	-	-	-
24 Sep 2020	20 mL, 3 rd hourly	500 mg 2 tab twice a day after food	-	-	-	-	-	-	-
25 Sep 2020	20 mL, 3 rd hourly	500 mg 2 tab twice a day after food	250 mg tab twice a day after food	5 gm powder twice a day	5 gm powder thrice a day	250 mg 2 tab twice a day	1 tab thrice a day	-	-
26 Sep 2020	20 mL, 3 rd hourly	500 mg 2 tab twice a day after food	250 mg tab twice a day after food	5 gm powder twice a day	5 gm powder thrice a day	250 mg 2 tab twice a day	1 tab thrice a day	-	-
27 Sep 2020	-	500 mg 2 tab twice a day after food	250 mg tab twice a day after food	5 gm powder twice a day	5 gm powder thrice a day	250 mg 2 tab twice a day	1 tab thrice a day	-	-
28 Sep 2020	-	500 mg 2 tab twice a day after food	250 mg tab twice a day after food	5 gm powder twice a day	5 gm powder thrice a day	250 mg 2 tab twice a day	1 tab thrice a day	-	-
29 Sep 2020	-	500 mg 2 tab twice a day after food	250 mg tab twice a day	5 gm powder twice a day	5 gm powder thrice a day	250 mg 2 tab twice a day	1 tab thrice a day	2 drops in both nostrils twice a day in empty stomach	-
30 Sep 2020	-	500 mg 2 tab twice a day after food	250 mg tab twice a day	5 gm powder twice a day	5 gm powder thrice a day	250 mg 2 tab twice a day	1 tab thrice a day	2 drops in both nostrils twice a day in empty stomach	-
01 Oct 2020	-	500 mg 2 tab twice a day after food	250 mg tab twice a day	5 gm powder twice a day	5 gm powder thrice a day	250 mg 2 tab twice a day	1 tab thrice a day	2 drops in both nostrils twice a day in empty stomach	-
02 Oct 2020	-	500 mg 2 tab twice a day after food	250 mg tab twice a day	5 gm powder twice a day	5 gm powder thrice a day	250 mg 2 tab twice a day	1 tab thrice a day	2 drops in both nostrils twice a day in empty stomach	-
03 Oct 2020	-	500 mg 2 tab twice a day after food	250 mg tab twice a day	5 gm powder twice a day	5 gm powder thrice a day	250 mg 2 tab twice a day	1 tab thrice a day	2 drops in both nostrils twice a day in empty stomach	-
04 Oct 2020	-	-	-	5 gm powder twice a day	-	250 mg 2 tab twice a day	-	2 drops in both nostrils twice a day in empty stomach	60-70 mL milk with 3 gm Turmeric and 2tsp of pure cow ghee
05 Oct 2020	-	-	-	5 gm powder twice a day	-	250 mg 2 tab twice a day	-	2 drops in both nostrils twice a day in empty stomach	60-70 mL milk with 3 gm Turmeric and 2tsp of pure cow ghee
06 oct till date follow up	-	-	-	5 gm powder twice a day	-	250 mg 2 tab twice a day	-	2 drops in both nostrils twice a day in empty stomach	60-70 mL milk with 3 gm Turmeric and 2 tsp of pure cow ghee



Figure 1: Ayurvedic principles of management of COVID and POST-COVID manifestations in the current report

to strictly adhere to regimes illustrated in Ayurveda such as bathing in hot water, eating only when hungry, avoiding spicy deep fried fermented food, day sleep, exertional activities except a few of the prescribed *Yogasanas* which were advised after initial treatment. The patient was made to take regular steam inhalation with *Kapoor*, *Ajvain*, gargle with warm water added with salt, *triphal*, and licorice root powder twice a day throughout the treatment. On 1st day, the patient was advised to consume *Shadanganipiyam* with *Mustapowder* in 20 mL dose 3rd hourly and was continued for the next 5 days. It is antipyretic, antidiabetic, anti dyslipidemic, anti-diarrheal, and reduces morbid thirst. He was advised to consume green gram gruel with rice and to take food only during peaks hours of *Pitta* and time when *Kapha* was in a reduced state. Tab *AYUSH 64* 2tab, thrice a day with *Jeeraka jala* was continued throughout the course of treatment. One of the studies stated that 1-week intervention of *AYUSH-64* helped to recover from influenza-like illness symptoms with reduced frequency of usage of acetaminophen and antihistamines.^[8] After the initial treatment of 3 days with *Langhana* (~light food) and *Pachana* (~ digestion-improving treatment), Tab *Laxmivilasa Rasa* with beetle leaf juice, *Sudarashana* powder, *Nishamalaki Churna*, *Chandraprabaha vati*, and *Khadiradi vati* was started. After 7 days of initial treatment, once the nasal stuffiness got reduced, *Anu Taila* nasal instillation was advised. Duration, dosage, and *Anupana* (~adjuvants) are described in Table 2.

In one of the studies, *Laxmivilas Ras* showed higher BSL reducing power as compared to other extracts. It was also found to be an efficient radical scavenger.^[9] *Guggulu* and *Shilajathu* which are the chief ingredients of *Chandraprabaha vati* (CPV) are especially useful in the condition of *Avarana* (disease with obstructive pathology) as in the case of *Madhumeha*. In a study, CPV exhibited an antihyperglycemic effect and attenuated

alterations in lipid profile. *Sudarshan Churna* has a maximum quantity of *Kiratatikta* (*swertia chirata*) which is bitter and has a cold potency, and *KatuPaka* Drug (*pungent*) having action to reduce burning sensation, fever, and diabetes. It showed significant scavenging activity against malondialdehyde formation in rats providing evidence for the potent antioxidant activity.^[10] *Nishamalaki* apart from controlling hyperglycemia and reducing lipid levels, effectively prevented the development of diabetic neuropathy. Apart from other actions, antioxidant action appears to be the most important mechanism.^[11] *Khadiradi vati* is a medicine which acts as lozenge to relieve local throat and nasal irritations. Also, it maintains oral hygiene which is most recommended for a patient with fever and diabetes in Ayurveda. *Anu Taila* nasal drops may impede the local growth of the pathogen in nasal and pharyngeal mucosa. More importantly, it may act as a comprehensive medicine that may be beneficial for respiratory, nervous, and mental health. OHDs that patient was consuming previously for the last 5 years were continued throughout 12 days. *Yogasanas* such as *Setubandhasana*, *Ushtrasana*, *Bhujangasana*, and *Pranayama* practices such as *Anuloma-Viloma*, *Bhramari*, and *Trataka* were advised only after symptoms of *Ama* (~nonmetabolized product) and the temperature came down. At the end of 12 days, all the vitals came to normalcy, and BSL was repeated and was found to be within normal limits. QOLID showed significant improvement owing to the enhanced immunity and general health. As a post-COVID rejuvenation therapy, the patient was advised to consume 2 tsp of pure cow ghee with turmeric milk every day and practice whole body oil massage with sesame oil followed by hot water bath regularly along with regular Ayurvedic antidiabetic medicines.

Conclusion

A case of COVID-19 in an elderly overweight patient with diabetes as a comorbidity was completely managed by holistic Ayurvedic medicines with no casualties. At the end of the treatment, even the BSL was normalized which was not under control previously. The patient was completely relieved from major symptoms in 4 days and tested negative after 12 days, with considerable improvement in QOL. The advice of *Yogasana* in the 2nd phase of treatment proved very effective in the early reduction of fatigue and body ache. Post-COVID QOL was assessed by EQ-5D, and significant improvement was noticed. The case was followed up for 60 days, and no post-COVID symptoms were reported. This holistic approach in the management of COVID-19 with Ayurvedic antipyretic and rejuvenative therapy would confer a better way forward in handling the pandemic and contribute significantly to the scientific community for further research.

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Conflicts of interest

There are no conflicts of interest.

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