



Correspondence

Potential for supportive Ayurvedic care in hypoxemic COVID-19 patients



The second wave of COVID-19 has overwhelmed the Indian healthcare system. The system is gasping for breath and hospitals are struggling with oxygen shortage, crunch for beds and ICU facilities with ventilator support. There are frequent reports of patients dying at home, on the road or in hospital corridors due to inadequate access to oxygen support and institutional care. In cities like Mumbai, this situation has prompted many patients to approach Ayurveda practitioners as a desperate supportive option. The Ministry of AYUSH, Govt of India, has issued several guidelines for practitioners treating COVID-19 patients [1].

The purpose of this short communication is to recommend further studies to explore the integration of a specific Ayurvedic intervention in early stages of decreasing peripheral oxygen saturation levels. Due to the unprecedented challenge posed by the escalation of the pandemic, Ayurveda physicians are caring for COVID-19 patients in intensive care settings with the consent of the patients as well as treating physicians or in home settings with the consent of the family members as an add-on therapy. Our recommendations are based on outcomes observed in several patients with low oxygen saturation levels i.e SpO₂ following continuous sublingual administration of classical Ayurvedic formulations like *Shaddharana Churnam*, *Apamarga Ksharam*, *Pippali Churnam*, *Rasasinduram* and *Naradiya Lakshmi Vilasa Rasam* in divided microdoses. In diseases presenting with dyspnoea, Ayurvedic texts recommend frequent administration of medicines [2]. The Ayurvedic rationale behind administration of these medicines is to remove the Avarana (complex obstruction) of Vata by Kapha and Kapha associated with Pitta. The Ministry of AYUSH, Govt of India is dynamically updating the classical Ayurvedic formulations that are used by Ayurvedic practitioners for management of COVID-19 [1]. There are several anecdotal accounts of patients getting benefitted by Ayurvedic interventions in severe hypoxic conditions. Few cases of patients on Ayurvedic treatment have been discussed below.

1. A 34-year-old male tested positive for COVID-19 by RT-PCR (28/09/20) presented to the first author with breathlessness and SpO₂ dipping below 90% (30/09/20). Within 3 h of sublingual administration of Ayurvedic medicines every 10 min, SpO₂ readings improved to 94%. The next day, the readings were in the range of 95–97% (01/10/20). Subsequently, it was well-maintained at 98–99% (02/10/20) and the patient recovered. At the time of diagnosis, his CRP value was high at 32.3 mg/dL. D-Dimer and Ferritin were within normal limits. This particular patient was treated during the first wave of the

pandemic in India and has a long follow-up without any further deterioration or complications.

2. A 75-year-old gentleman with diabetes was admitted in a hospital due to worsening of symptoms after testing positive for COVID-19 (01/04/21). At the time of admission, ferritin was 312.9 ng/mL, CRP was 55.65 mg/L, IL-6 was 33.8 pg/ml, and D-Dimer was within normal limits. LDH was found to be raised at 829.2 on 07/04/2021. LDH was 463 and CRP was 3.08 mg/L on 14/04/21, and ferritin was 312.5 on 11/04/21. He was discharged after two weeks (16/04/21) and was advised home oxygenation for 30 days as his pulse oximetry readings fluctuated between 80 and 85%. He was advised to follow-up after a week. Five days after discharge (21/04/21), the patient approached the first author of this communication and was administered Ayurvedic medicines sublingually. In about eight hours, the oxygen saturation increased to 89% from the initial 81% and in the next four hours to 95%. On the third day of starting Ayurvedic treatment, oxygen saturation was found to be maintained at 97% (23/04/21). Oxygen supplementation could be completely withdrawn, three weeks earlier than recommended, and within three days of initiation of the Ayurvedic treatment. The patient is recovering and is continuing the Ayurvedic medications.
3. A 45-year-old male was tested positive for COVID-19 (10/4/2021) with symptoms like loss of smell and taste, fatigue, bodyache and breathlessness on exertion. Oxygen saturation levels decreased to below 90% and patient complained of increasing breathing difficulty. He approached the first author for Ayurvedic treatment (11/04/2021). In about six hours after initiation of Ayurvedic treatment, the pulse oximetry reading improved to 93% and within twelve hours to 95%. The patient also reported symptomatic improvement. On 13/04/2021 CRP was high at 42.2 mg/L, SGOT was 75 and SGPT 83 IU/L, ferritin was 320 ng/mL, and IL-6 was 48.9 pg/mL. Tests were not repeated later. Five days later, the SpO₂ reading was 96% (16/04/2021) and two weeks later, the patient was found to be asymptomatic and oxygen saturation was well maintained at 97% (25/04/2021).
4. A woman in her eighties with worsening respiratory distress following diagnosis of COVID-19 by rapid antigen test could not be admitted to a hospital due to non-availability of beds and was in home quarantine. Despite receiving supplemental oxygen (5–6 L/min) at home, her pulse oximetry readings hovered around 45–48%. Breathing was labored with abnormal breath sounds. The family approached an Ayurveda general practitioner, the first author of this communication, seeking medical intervention (26/04/21). Continuous sub-lingual administration

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Table 1
Periodic Pulse Oximetry readings in the patients.

	Patient One	Patient Two	Patient Three	Patient Four
Baseline SpO2 BT	81%, 30/09, 0235	81%, 21/04, 0855	89%, 11/04, 0857	45%, 26/04, 1219, 48%, 26/04, 1413^a
Reading One AT	94%, 30/09, 0537	89%, 21/04, 1745	93%, 11/04, 1513	79%, 26/04, 2311
Reading Two AT	95%, 01/10, 2242	95%, 21/04, 2157	95%, 11/04, 1949	85%, 27/04, 0124
Reading Three AT	97%, 02/10, 1525	97%, 23/04, 0729	96%, 16/04, 0510	87%, 27/04, 0200
Reading Four AT	99%, 02/10, 2013		97%, 25/04, 0816	63%, 27/04, 0856
Reading Five AT				77%, 27/04, 2356
Reading Six AT				99%, 28/04, 0111

^a Reading at the time of starting Ayurvedic treatment.

of Ayurvedic medicines at an interval of 10 min was seen to improve oxygen saturation levels to 78% within four hours. It further increased to 87% with patient showing signs of clinical improvement by sitting up on the bed and responding to questions six hours after starting Ayurvedic treatment. There was panic in the family when other members of the household taking care of the patient tested positive for COVID-19 and sublingual administration of Ayurvedic medicines for our patient was discontinued the next day. In a short time, oxygen saturation levels dropped to 63% but patient was still sitting up and conscious. Sub-lingual administration of Ayurvedic medicines was initiated again, and oxygen saturation levels improved once again to 77% and further around 90% in a span of 4–5 h. Subsequently, oxygen supply was exhausted, and the patient did not receive further care as family members reported sick due to symptoms of COVID-19. CRP was 79 mg/L on 26/04/21 before starting Ayurvedic treatment. On 27/04/21, it was found to be 53 mg/L. D-Dimer and ferritin were within normal range but there were no previous lab reports for comparison. IL-6 was 48 pg/ml, LDH was 868.7 U/L and SGOT was 82.3 U/L, which were all elevated, but could not be compared with any previous readings. The patient died the next day (28/04/21).

Based on the observations in these patients and many others, we are reporting the possible beneficial outcomes of Ayurvedic interventions in hypoxia that seem to have the potential to supplement Standard of Care (SoC) for COVID-19 (see Table 1). We suggest that such interventions should be further explored for potential to minimize the burden on intense hospital care by reducing the need for oxygen supplementation. It has also been observed in other patients that Ayurvedic intervention in early stages of decreasing peripheral oxygen saturation can possibly prevent the need for oxygen supplementation and hospitalization. A published case series reported poor outcomes in SpO2 readings and clinical outcomes even with oxygen supplementation and SoC in similar patients [3]. An exploratory study pointed to the potential of Kinin B2 Receptor Antagonist to reduce oxygen need in COVID-19 patients [4]. Similar studies may be done to understand the role of the Ayurvedic formulations in managing hypoxia. A systematic documentation of COVID-19 cases presenting with low SpO2 readings and managed with Ayurvedic interventions is in progress and will be reported as a Case Series. The team is studying the data for possible inconsistencies in responses, dose–response relationship,

and any possible adverse effects. Rigorous clinical studies need to be conducted to explore the possibility of integrating this Ayurvedic intervention with SoC for administration in appropriate stages of hypoxia.

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Unnikrishnan Payyappallimana, the second author of the correspondence, is in the editorial team of the journal. However, he was not involved in any editorial or review processes of the submission.

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