



Case Report

Time when a physician turned out to be a patient: A case study on how an Ayurvedic physician cured himself from COVID-19

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ABSTRACT

Medical literature continues to get enriched through various researches and observations related to SARS-CoV-2 infection leading to COVID-19. Case reports play crucially to understand a novel clinical condition where much is yet to be known. Current pandemic is unique for the reason that its impacts upon front line health care workers (HCWs) are much higher than general population. In this situation, how an Ayurvedic physician has handled his own case leading to a cure from COVID-19 may furnish important information regarding mitigation and cure from the disease. This is also an unprecedented writing in medical literature as a physician reporting his own case is a rare phenomenon in medical history. This case report puts strongly the prophylactic and disease modifying potential of Ayurvedic interventions in COVID-19.

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1. Introduction

Since the onset of COVID-19 pandemic in late December 2019, globally, till 31 December 2020, there have been 8, 11, 59,096 confirmed cases of COVID-19, including 17, 91,246 deaths, reported to WHO [1]. The disease trajectory is still active and the world is facing the fresh threat of renewed pandemic waves and mutated strains of the causative virus [2]. India is 2nd worst hit country affected by the pandemic and so far over ten million people are affected by it. The pandemic has affected every class and creed of humans across the globe irrespective of their nationality or social order. Although, this seems obvious that for various reasons, first line health care workers (HCW) including the paramedics and physicians are most vulnerable to the dreaded disease [3], a clear data about proportion of HCW suffering with COVID-19 is yet to come [4,5]. Indian Medical Association (IMA) has recently furnished that about 665 modern medical practitioners have lost their lives while fighting with COVID-19 [6]. The earlier data suggested a 10 times higher COVID-19 related case fatality rate (CFR) (16.7%) among Indian doctors, comparing to the 1.7% CFR among the

general population [7]. This risk of susceptibility increases many fold if the HCWs are directly involved in COVID-19 care or are exposed to nasal -oral secretions of infected people during patient care. The incidence of HCWs getting affected by COVID-19 has seen a sharp rise after the phases of lockdown are over and the health care services are on their way to resumption.

Ayurveda health care providers in India are facing an unprecedented situation in this scenario marked by their un-authorization and lost identity in the pandemic management. Those who were in public service have been repurposed on the behest of district administration as paramedics for disease surveillance, contact tracing and monitoring of quarantine centres without actually getting sensitized for the importance of the task and support system to avoid accidental exposures. This has eventually increased the possibility of Ayush HCWs getting exposed and affected by the disease.

During the unlock phase, resumption of Ayurveda health care services without adequate preparations to deal with heavy influx of unscreened out -patients has created a havoc to the front line service providers. There had not been any triage area in most Ayurveda hospitals and so it was easy to find infected patients roaming everywhere in the hospital premises. In this unlock scenario, without an adequate preparedness, Ayurveda health care workers working in hospitals were bound to face the challenges of

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getting exposed with the infection and to suffer. In one leading secondary care Ayurveda institution and hospital in Lucknow, at least 50% among all clinicians in Department of Ayurvedic medicine (Kaya Chikitsa) were found RT-PCR positive for SARS-CoV-2 virus within three months since the hospital services are resumed. A substantial number of people from other departments including the paramedics were also found affected with the disease. Unfortunately, like IMA in modern medicine, there are no active bodies in Ayurveda taking an account of sufferings and its intensity, Ayurveda health care workers are facing during COVID-19. We are not truly aware how many of Ayurveda physicians and paramedics have suffered with the disease and lost their lives in the battle. A real impact of the pandemic on Ayurveda fraternity therefore is yet to be understood.

Since the beginning of the pandemic, Ayurveda was promoted as immunity booster by various authorities including Ministry of AYUSH [8]. It was prompted to have prophylactic potential in order to prevent a disease from happening. Various propositions were suggested by experts in the field to utilise classical wisdom of Ayurveda for nabbing the disease [9–11]. Numerous attempts have been made across the country to cross check the utility of Ayurveda recommendations in rapid and uneventful recovery of COVID-19 cases with mild to moderate severity. Many case reports, case series, observational studies and clinical trials have been published and are underway of exploration so far showing the worth of Ayurveda in COVID-19 cases of mild to moderate severity in stand alone or in integrative mode along with modern medicine [12–15]. Although, we believe that among the large workforce of Ayurveda working in the field, many might have suffered with the infection and may have handled the infection in their own way utilising the practical knowledge of Ayurveda, they have experienced so far, we did not find any Ayurveda physician's narrative of dealing with COVID-19 as a patient in the literature published so far.

We therefore present here this unprecedented account of observation which the author (SR) and his monitoring team of physicians (AK, RR) have made while dealing with COVID-19 recently. A rapid and uneventful recovery within a short span of time in this case was testimonial of two important things. Firstly, a continued prophylaxis over the past few months through Ayurvedic drugs was presumably able to develop disease tolerance up to some extent. This was the possible reason that symptoms remained of mild to moderate severity in the presented case without showing their full spectrum. Second equally important observation was to see that Ayurveda intervention in a standalone mode was able to handle the mild to moderate pathogenesis effectively and was able to cut down the recovery time substantially without any traces of COVID-19 related complications. Both of these observations are highly important and add value to the growing understanding of diseases and its Ayurveda management.

2. Case report

This is about a 56 year old otherwise healthy male, of average height and built (76 Kg weight), without any co-morbidity and without any history of addiction. He is an Ayurvedic physician by profession, deeply convicted with the principles of Ayurveda and their health keeping potential. Before the actual onset of symptoms on 13.9.2020, the previous day he run his OP based clinic at State Ayurvedic College and Hospital, Lucknow where he has given consultation to approximately 60 patients. It was an exhaustive day as after completing the routine OP services, he worked for another 2 h in the department completing some pending tasks. He was feeling exhausted, the others could have noticed it as he was shared by others when information about him getting infected broke out.

The author since the outbreak of pandemic had been doing a few activities on the regular basis in a bid to add to body tolerance and to prevent the disease. These were drinking hot water every morning and occasionally during the day, drinking golden milk (200 mL milk mixed with 5 g turmeric), taking Giloy (*Tinospora cordifolia* (Thunb.) Miers) and Ashwagandha (*Withania somnifera*(L.)Dunal) in the 500 mg tablet form once every day and taking Sanjeevani Bati (125 mg) once every day. Healthy and nutritious food composed of adequate amount of phytonutrients were part of the regular meal. He used to have good sleep of 7–8 h every night. These practices were continued till the 1st symptomatic day. Subsequent to the arrival of symptoms, the course of management changed as per the need and as per the recommendations of monitoring team (AK, RR). Following is the spectrum of symptoms observed in next 15 days along with the interventions taken (Table 1 and Table 2). Details of the intervention are given in Table 3. Investigation details during the course of illness and treatment are given in Table 4.

Day 1: on 13.9.2020 after getting up in the morning, severe upper backache and malaise was felt. The author could not attribute any cause to it and thought that a reduced room temperature may have caused it. He thought it to be a transient symptom to go away by itself. Symptoms however did not go and rather intensified. During the day he felt mild fever which by evening intensified and made him to lie on bed.

Day 2: It was full blown fever next day reached to a maximum of 103 °F. The backache intensity was increased and he was not able to sleep well. There was malaise, loss of appetite and also loss of taste in mouth. There was dry cough also. SPO2 through a pulse oximeter was measured to 98% and the pulse was 120/mt. It was suspected as COVID-19 infection. A rapid COVID-19 Antigen test was done however it has shown negative results.

Day 3: Symptom intensity was mildly reduced for all symptoms. Fever persisted and the pulse remained rapid (112/mt). The Oxygen saturation was found reduced to 94% although there were no respiratory symptoms. Rapid COVID-19 Antigen test was done and found strongly positive.

Day 4: All the symptoms were stable although were in the lesser intensity as was reported previously. There was occasional cough and there was no lethargy. SPO2 was 96% and the pulse was still rapid (110/mt). RT-PCR test for COVID-19 was done and found positive.

Day 5: There was no fever and backache. Also there was no dry cough. There was partial recovery of taste. Appetite was better than earlier. Pulse was still rapid. There was feeling of exhaustion after some work. Sleep was normal.

Day 6: There were no remarkable symptoms. The taste was recovered. Pulse was still rapid. There were occasional bouts of dry cough. There was occasional feeling of fever by evening however it was not recordable through thermometer.

Day 7 to Day 14: There were no remarkable symptoms except that there were occasional bouts of dry cough. There was occasional feeling of fever by evening. Pulse remained rapid throughout this period. On day 14 RT-PCR was done and found negative.

2.1. Interventions and care on daily basis

Table 2 illustrates the interventions and care observed on daily basis. There was use of 650 mg paracetamol three times a day to reduce fever during initial three days. A supplement composed of Vitamin C 500 mg, Vitamin D 1000 IU, Zinc 36 mg and Nano Curcumin 50 mg as a single tablet was also taken during the course of illness. Table 3 furnishes the details of all interventions taken prior to the disease and after it.

Table 1
Clinical features on daily basis.

Clinical features/Date	12.9.20	13.9.20	14.9.2020	15.9.2020	16.9.2020	17.9.2020	18.9.2020	19.9.2020	26.9.2020
Dullness/Lethargy/	+	+	+	-	-	-	-	-	-
Muscle Fatigue	+	+++	++	+	+/-	+/-	-	-	-
Body ache	-	+++	++	+	+/-	-	-	-	-
Fever	-	+++	++	+	+/-	-	-	-	-
Dry cough	-	+++	+	+/-	-	-	-	+	+
Loss of taste	-	++	+	+/-	+/-	+/-	-	-	-
Breathlessness	-	-	-	-	-	-	-	-	-
SpO2	Not measured	98	94	96	96	98	98	98	98
Pulse	Not measured	120	116	112	110	98	96	96	84
Rapid COVID-19 Ag test	-	Week + ve	Strongly + ve						
RT-PCR test					+ve				-ve

Table 2
Medications and personal care on daily basis.

Medications/ Date	12.9.2020	13.9.2020	14.9.2020	15.9.2020	16.9.2020	17.9.2020	18.9.2020	19.9.2020	26.9.2020
Rest/Activity	-	Rest	Rest	Started doing some activity at home	Started doing some activity at home	Doing non strenuous cognitive activity at home	Doing non strenuous cognitive and physical activities	Doing non strenuous cognitive and physical activities	Able to do non strenuous cognitive and physical activities continuously for 2-3 h
Hot water drinking	-	✓	✓	✓	✓	✓	✓	✓	✓
Light food	-	No appetite, Only a bowl of lentil yusha was taken	No appetite, Only a bowl of lentil yusha and bottle guard soup was taken	Partial appetite, still only a bowl of lentil yusha and a bowl of bottle guard soup was taken throughout the days	Partial appetite, still only a bowl of lentil yusha and a bowl of bottle guard soup was taken throughout the days	Taste was partially restored. Took two chapatis and lentil soup	Taste was partially restored. Took two chapatis and lentil soup	Taste was restored. Took two chapatis, lentil soup, bottle guard soup and some salad	Appetite is restored. Still taking meal composed of lentils, bottle guard and Chapatis only
Sanjeevani Bati 125 mg	-	2 tablets twice a day	2 tablets twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day
Tablet Cold Kal 500 mg	1 tablet once a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day
Tablet Tvisha	1 tablet once a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day
Amrut 500 mg	1 Tablet once a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day
Tablet Aswagandha 500 mg	1 Tablet once a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day
Tablet Guduchi 500 mg	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 Tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day	1 tablet twice a day
Chyavan prash	-	-	-	-	10 g/day	10 g/day	10 g/day	10 g/day	10 g/day

2.2. Outcome

A weight loss of approximately 6 Kg was noted during the course of illness. Loss of taste and appetite were presumed to be its primary cause as it started recovering once the symptoms were over. Routine personal care activities were resumed from 3rd day of the illness. Taste was restored from 5th day and appetite got improved gradually from 3rd day onwards. There was no requirement of any analgesic and antipyretic after initial three days. From 5th day mild to moderate cognitive activities including working on computer were started. After 7 days participation in routine household chores related to self-care was possible. The whole treatment was executed as home based care in isolation with a careful monitoring by a team of physicians (AK, RR) for vitals and all biochemical and haematological parameters indicative of prognosis. Temperature and Oxygen saturation was regularly

monitored. After 15 days almost complete recovery was observed from all symptoms except the occasional presence of mild dry cough and rapid pulse. There also remained fatigue which was most remarkable after 2-3 h of work. RT-PCR was found negative when it was tested after 10 days of its initial identification.

3. Discussion

This is probably the first instance in the history of current pandemic where an Ayurvedic physician is presenting his own case as an evidence to show how Ayurveda helps in the active management of COVID-19. The case is remarkable for two important reasons. One is that it clearly shows the prophylactic potential of various Ayurveda and life style related interventions in reference to the current pandemic. This is observed that although such interventions do not completely prevent the disease to occur, these definitely help

Table 3

Composition of intervention drugs used in the case.

Name of the drug	Composition	Part used	Amount in mg in each tablet	
Tablet ColdKal 500 mg	Guduchi (<i>Tinospora cardifolia</i> (willd))	Stem	200	
	Kalmegh [<i>Andrographis paniculata</i> (Burm. F.) Wall ex. Nees]	Whole plant	150	
	Tulsi (<i>Oscimum sanctum</i> Linn.)	Whole plant	150	
Tablet TvishaAmrit 500 mg	Haldi (<i>Curcuma longa</i> Linn.)	rhizome	50	
	Kalmegh [<i>Andrographis paniculata</i> (Burm. F.) Wall ex. Nees]	Whole plant	50	
	Moringa (<i>Moringa oleifera</i> Lam.)	seed	50	
	Tulsi (<i>Oscimum sanctum</i> Linn.)	Whole plant	50	
	Vaca (<i>Acorus calamus</i> Linn.)	Rhizome	25	
	Lasun (<i>Allium sativum</i> L.)	Bulb	50	
	Mulethi (<i>Glycerrhiza glabra</i> L.)	root	50	
	Daruharidra(<i>Berberis aristata</i> DC)	Stem	25	
	Guggullu(<i>Commiphora wightii</i> (Arnott))	Exudate	25	
	Pippali (<i>Piper longum</i> Linn.)	Fruit	25	
	Harad (<i>Terminalia chebula</i> Retz.)	Fruit	25	
	Chitrak (<i>Plumbago zeylanica</i> Linn.)	Root	25	
	Shunthi (<i>Zingiber officinale</i> Rosc.)	Rhizome	50	
	Tablet Ashwagandha 500 mg	<i>Withania somnifera</i> (L.) Dunal	Root	500
	Tablet Guduchi 500 mg	<i>Tinospora cardifolia</i> (willd)	Stem	500
Tablet Sanjeevani Bati 125 mg	<i>Vidanga</i> (<i>Embelia ribes</i> Burm.)	Fruit	1 part	
	Shunthi (<i>Zingiber officinale</i> Rosc.)	Rhizome	1	
	Pippali (<i>Piper longum</i> Linn.)	Fruit	1	
	Haritaki (<i>Terminalia chebula</i> Retz.)	Fruit	1	
	Amala (<i>Embllica officinalis</i> Gaertn.)	Fruit	1	
	Vibheetak(<i>Terminalia bellirica</i> Roxb.)	Fruit	1	
	Vacha (<i>Acorus caloamus</i> Linn.)	Rhizome	1	
	Guduchi (<i>Tinospora cordifolia</i>) (willd)	Stem	1	
	Bhallatak (<i>Semecarpus anacardium</i> Linn.)	Fruit	1	
	Vatsanabha (<i>Aconitum ferrox wallex</i> Seringe.)	Root	1	
	Go Mutra (Cow Urine)		Quantity sufficient	

Table 4

Haematological investigations during the course of therapy.

Name of the Investigation	Unit	16.09.2020	20.09.2020	24.09.2020	26.09.2020
RT-PCR		Positive	—	—	Negative
Haemoglobin	g%	—	15.6	15.7	
Total Leucocyte Count	Cells/cumm		5400	7300	
Polymorph	%		66	66	
Lymphocyte	%		30	25	
Eosinophil	%		2	4	
Monocyte	%		2	5	
Basophils	%		00	00	
Red Cell Count	milli/cmm		5.75	5.69	
Packed Cell Volume	CC%		48.1	46.5	
Platelet Count	Lac/cumm		1.34	1.80	
MCV	fL		83.5	81.7	
MCH	pg		27.5	27.6	
MCHC	g/dl		32.9	33.8	
Serum Urea	mg/dl		22.10		
Serum Creatinine	mg/dl		1.28		
Total Bilirubin	mg%		0.48		
Direct Bilirubin	mg/dl		0.21		
Indirect Bilirubin	mg%		0.27		
SGOT (AST)	IU/L		42.50		
SGPT (ALT)	IU/L		30.90		
S. Alkaline Phosphatase	U/L		73.3		
Serum Sodium	mmol/L		141.3		
Serum Potassium	mmol/L		3.69		
D- Dimer	ng/mlFEU			225	

making the course of illness milder in intensity [16]. In this case author was reported to suffer with mild symptoms only whereas many of his colleagues from the same department and institution had suffered with moderate to severe disease requiring Intensive hospital based care. The reason may remotely be attributed to the prophylactic intervention actively observed by the author for past over 3 months before he actually suffered with the disease.

The second and equally important inference is the smooth recovery from the illness in a shorter period and without any need of any biomedical intervention. Although this was important to have

regular monitoring on various biochemical and haematological parameters to keep a constant watch upon the progress of the recovery, any modern medication per se was not required to manage the disease with mild severity. There was a rapid recovery for almost all symptoms in initial one week time and the RT-PCR came negative on 10th day suggestive of self-limiting nature of the disease and also of the action of Ayurveda intervention on *samprapti* of the disease itself. This is suggested that those who have religiously followed Ayurveda prophylactic measures in general along with general precautions to prevent the disease, may have seen a milder

course of the illness comparing to those who do not adhere with it [17]. We see through the list of interventions and their components that most of the herbs used have recently been identified for their antiviral potential.

Being the front line health care workers, this is obvious for HCWs to become more prone for any possibility of contracting the SARS-CoV-2 virus. A higher case incidence among HCWs comparing to the general population therefor is inevitable. What unfortunate is to see the higher SARS-CoV-2 related case fatality rate among HCWs comparing to the general population. Although, this would be very difficult to interpret, what is actually preventing someone from the disease and what is keeping the disease minimally presented among few others whereas giving worst outcomes to some others, this case proposes that among many plausible reasons for this to happen, a constant shielding through Ayurvedic drug and life style based interventions also seem to have played an important role.

Self-medication/treatment is a common practice across the health care systems, but it's not appropriate to treat thyself as a physician can't be objective when prescribe own. The literature notes various risks of self-medication such as incorrect self-diagnosis, delays in seeking appropriate medical advice and proper treatment, potential adverse reactions, worsening of the condition when the individual is trying to self-treat, dangerous drug interaction, masking of severe diseases etc. This general rule about limitation of self-medication however may find a liberty in case of a pandemic where the people are repeatedly made aware about home remedies to prevent and manage mild conditions and where home based care is allowed with a close monitoring until warranted otherwise.

4. Conclusion

Since the outbreak of COVID-19 pandemic, despite the intensive efforts of health care researchers to find its effective solutions, the real cure is still illusive [18]. Being a novel disease, the knowledge obtained about its course, clinical profile, prognosis, complications and possible interventions continues to evolve [19]. Individual observations made in this regard through case reports form an important piece of information having a possibility to add important clues for a better understanding of the disease and its management [20]. In this scenario the observations reported by an Ayurvedic physician about his own illness managed and monitored by a team of physicians becomes highly valuable. Such attempts have rarely been made in the history of medical literature and are absolutely rare in Ayurveda. The observations made in the case report are highly important as these propose about the dependable prophylactic potential of Ayurveda and life style intervention for prevention and mitigation of SARS-CoV-2 infection.

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Conflict of interest

None declared.

References

- [1] WHO coronavirus disease (COVID-19) dashboard (Last accessed on 31.12.2020), <https://covid19.who.int/>.
- [2] Coronavirus: Alarming symptoms of new COVID-19 strain that need to be treated immediately. <https://timesofindia.indiatimes.com/life-style/health-fitness/health-news/coronavirus-alarming-symptoms-of-new-covid-19-strain-that-need-to-be-treated-immediately/photostory/79988428.cms>. [Accessed 31 December 2020].
- [3] The Lancet. COVID-19: protecting health-care workers. *Lancet* 2020;395(10228):922. [https://doi.org/10.1016/S0140-6736\(20\)30644-9](https://doi.org/10.1016/S0140-6736(20)30644-9).
- [4] Ing EB, Xu Q(A), Salimi A, Torun N. Physician deaths from corona virus (COVID-19) disease. *Occup Med* July 2020;ume 70(Issue 5):370–4. <https://doi.org/10.1093/occmed/kqaa088>.
- [5] Chen M, Wei X, Wang Z. Protecting healthcare workers from SARS-CoV-2 and other infections. *Epidemiol Infect* 2020;148:E217. <https://doi.org/10.1017/S0950268820002198>.
- [6] <https://www.ima-india.org/ima/>. [Accessed 12 December 2020].
- [7] Kapoor A, Kapoor KM, Covid-19 related deaths among doctors in India, Available at medRxiv preprint doi: <https://doi.org/10.1101/2020.09.28.20202796> (Accessed on 31.12.2020).
- [8] <https://health.ncog.gov.in/ayush-covid-dashbaord/>. [Accessed 12 December 2020].
- [9] Rastogi S, Pandey DN, Singh RH. COVID-19 pandemic: a pragmatic plan for ayurveda intervention. *J Ayurveda Integr Med* 2020. <https://doi.org/10.1016/j.jaim.2020.04.002>. S0975-5947(20)30019-X. [Epub ahead of print].
- [10] Tillu G, Chaturvedi S, Chopra A, Patwardhan B. Public health approach of Ayurveda and Yoga for COVID-19 prophylaxis. *J Altern Complement Med* 2020;26(5):360–4. <https://doi.org/10.1089/acm.2020.0129>.
- [11] Rastogi S, Singh RH. In the context of COVID-19 and Ayurveda: few quick takeaways India may wish to have. *AAM* 2020;9(2):64–6. <https://doi.org/10.5455/AAM.110497>.
- [12] Girija PLT, Sivan N. Ayurvedic treatment of COVID-19/SARS-CoV-2: a case report. *J Ayurveda Integr Med* 2020. <https://doi.org/10.1016/j.jaim.2020.06.001>. S0975-5947(20)30042-5. Epub ahead of print. PMID: 32680602; PMCID: PMC7303645.
- [13] Sharma M, Mandal SK, Sharma C, Rai S, More A. Ayurvedic management of moderate COVID-19 infection: a case report. *J Ayurveda Case Rep* 2020;3:46–50.
- [14] Charan J, Kaur R, Bhardwaj P, Kanchan T, Mitra P, Yadav D, et al. Snapshot of COVID-19 related clinical trials in India. *Indian J Clin Biochem* 2020;35(4):1–5. <https://doi.org/10.1007/s12291-020-00918-1>.
- [15] Wanjarkhedkar P, Sarade G, Purandare B, Kelkar D. A prospective clinical study of an Ayurveda regimen in COVID 19 patients. *J Ayurveda Integr Med* 2020. <https://doi.org/10.1016/j.jaim.2020.10.008>. S0975-5947(20)30098-X. [Epub ahead of print].
- [16] Rastogi S, Singh RH. Taking lessons from the current pandemic to prepare for the future. *AAM* 2020;9(3):144–7. <https://doi.org/10.5455/AAM.1603468291>.
- [17] Rastogi S. Viral Epidemics and traditional health care systems: it's time to act honestly, proactively and collectively. *AAM* 2020;9(1):1–5.
- [18] Verma HK, Merchant N, Verma MK, Kuru Ci, Singh AN, Ulucan F, et al. Current updates on the European and WHO registered clinical trials of coronavirus disease 2019 (COVID-19). *Biomed J* 2020;43(5):424–33. <https://doi.org/10.1016/j.bj.2020.07.008>.
- [19] Pandkar PD, Sachdeva V, Pathophysiology of COVID-19 and host centric approaches of ayurveda, <https://doi.org/10.1016/j.jaim.2020.11.010>.
- [20] Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese center for disease control and prevention. *J Am Med Assoc* 2020;323(13):1239–42. <https://doi.org/10.1001/jama.2020.2648>.