

AYURVEDIC IMMUNOMODULATION THERAPY IN POST COVID CARE W.S.R TO PCFS SCALE-A SINGLE CASE REPORT

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ABSTRACT

Hereby, presenting a Case of a 36 years old male patient who was found positive for COVID-19 with high grade fever, dry cough, Anorexia, dyspepsia and fatigue. The patient was not found to have any history of Hypertension, diabetes or any kind of metabolic diseases and hence, was not required to get hospitalized or take any kind of intensive care treatments. Overall, he was just allowed to get home-isolated and advised to follow all the instructions for the quarantine period and was fortunately found negative after successive 2 weeks. But, as we know the, 'After Effects' of the disease are still more complicated and there is no clear-cut answer coming out to this menace. Studies show that the Drastic fluctuation in the patient's immune mechanism is the most accepted fact regarding the after-effects of COVID and hence, it is quite important to focus on improving and boosting patients' immune system while dealing with post COVID-care. It is well known fact that post covid complications require formulations directly striking the immune mechanism of body," i.e. Immunomodulators'. Ayurvedic immunomodulators are nothing but *Rasayanas* which have the therapeutic potential to rejuvenate one's immune system. Thus, in this Single case study patient is given a formulation of authentic Ayurvedic *Rasayanas* for the period of one month. Patient was assessed objective by **PCFS (Post Covid Functional Status)** scale and subjectively on the basis of gradations of symptoms. Results were interpreted on the basis of data analysed. This short report is a genuine attempt to highlight the results of ayurvedic Immunomodulators in treating mild to moderate aftereffects of Covid-19 and rejuvenating

one's immune system which may be a promising step towards community health and prevention in the nearby future.

Keywords: Post-COVID Care, Ayurvedic Immunomodulation, Post Covid Functional Status (PCFS)Scale

INTRODUCTION

Global community is facing an unprecedented pandemic of novel corona virus disease (COVID-19) caused by Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV- 2). The disease has spread globally with more than 70 million Cumulative cases and 1.6 million deaths globally since the start of the pandemic.[1]Undoubtedly covid-19 has emerged as an epidemiological outbreak in 2020 bringing the lives of the whole human fraternity into Danger but the after effects of this evil menace cannot be neglected. As they are even more complicated and may lead to multiple long term complications such as lung-fibrosis, multi-organ damage, septic shock, blood clots, mental confusion and even more Hence, the Post covid Care with proper and timely management is utmost important in dealing with the disease. Post-covid symptoms or also termed as "long covid" seems to be a multisystem disease, sometimes occurring after a relatively mild to moderate acute illness. of covid-9. The symptoms of POST-COVID ranges from mild to severe and require respective treatments. Mild symptoms include Generalised weakness, Fatigue, Joint pain, Chest pain, sleep issues etc, while severe symptoms include lung-fibrosis, multi-organ damage, septic shock, blood clots etc, which require hospitalization with intensive care[3]. It is also equally important to timely assess and estimate the risk of post COVID subjects for their relapse. Hence, there periodic assessment is utmost important tool in identifying high risk subjects. Risk estimates are also useful in raising population awareness of disease and to communicate knowledge about the risk to individuals. One such risk assessment scale has been designed by ----called as the Post Covid Functional Status (PCFS) Scale[4].

PCFS: the scale is ordinal and has 6 steps ranging from no symptoms to 5 (intensive care) and covers the entire range of functional outcomes on limitations and

changes in lifestyle of patients. The scale grades are intuitive and can be easily grasped by both clinicians and patients.

Why Ayurveda?

Ayurveda, which emphasizes more on prevention of the disease rather than its treatment have stated a number of formulations which directly act on the immune system of an individual and help him to cope with the aftereffects. It Describes *Rasyanas* in its ancient texts which are nothing but immunomodulators having capacity to enhance and boost one's immune system if consumed in a proper way and for a scheduled period of time. The basic concept of immunomodulation not only existed in Ayurveda but is being really practiced by the Ayurvedists for centuries. In Ayurveda, immunity enhancement is achieved through the use of the *Rasayana* and *Vajikarana* therapies and also by use of *Ojovardhaka* remedies. Ayurveda describes a number of drugs as *Rasayanas* which claim to possess immunomodulatory effect. Some of the *Rasayans* which have been subjected to scientific studies and found to possess immunomodulatory effect are *Aswagandha*, *Shilajatu*, *Amalaki*, *Guduci*, *Pippali*, *Punarnava* etc. One such formulation of these immunomodulators is used in post COVID condition to rule out the immunomodulatory effect of the drugs which by their specific properties and active principles may help to enhance the immune mechanism of the subject. This short case report is a genuine attempt to evaluate the immunomodulatory effect of the ayurvedic formulations in post covid condition. It is believed that this small attempt of treating post covid complications entirely through ayurvedic *Rasayana* therapy will surely be beneficial in patients suffering from mild to moderate cases and will prove as a boon in prevention and management of post COVID care through traditional medicine in the community.

The Case Presentation:

A) Personal History:

This was a Case of a 36 years old male patient who visited the Outdoor patient department of SKRPAC with the presenting Complaints of Generalised weakness, severe fatigue, Anorexia, joint pain and dysnoea on exertion. Further enquiry revealed that the patient was found positive for COVID-19 about a month ago (approx.. 3-4 weeks ago).

B) Covid History:

The symptoms he suffered at the onset of COVID-19 infection included high grade fever, Dry cough, Anorexia, and myalgia with fatigue. The patient was not found to have any history of Hypertension, diabetes or any kind of metabolic diseases and hence, was not required to get hospitalized or take any kind of intensive care treatments. Symptomatic treatment was started by the patient on day 3rd of infection which relieved severity of the symptoms to some extent. Thus, there was no need of hospitalization of the case. Overall, he was just allowed to get home-isolated and advised to follow all the instructions for the quarantine period and was fortunately found negative after 2 successive weeks. However, the patient continued to suffer from some of the symptoms listed above in the post covid condition and thus visited our hospital for post COVID care.

Study Design:

This was a single case Report. Written consent of the patient was taken in the best understandable language. The study duration was of 1 month and was carried out in in the outdoor patient department of Swasth-yarakshan & Yoga, Shri K.R Pandav ayurvedic college and hospital, Nagpur. Initially, looking to the pattern of symptoms, the patient was thoroughly examined, and aftereffects of the disease were listed accordingly. Therapeutic regime was planned which consisted a group of five basic rasayanas of Ayurveda along with adjuvant immune boosting remedies.

Dose and Posology

The formulation prepared by mixture of the following stated ingredients was given in the powdered form i.e total formulation of 10 gm/day was given in two divided doses.

- *Ashwagandha (withania somnifera) –2 gm*
- *Tulasi-(ocimum Sanctum)2 gm*
- *Guduchi (Tinospora Cordifolia)–2 gm*
- *Amalaki (Emblica Officinalis)-2gm*
- *Pippali (Piper longum)-2gm*

The above formulation is advised to take after meals for consecutive 30 days along with adjuvant immune boosting Diet and Relation techniques including post COVID regime.

Diet:

- A high protein rich diet including, soybean, egg white, pulses, Rice porridge, Yusha fish, poultry and unprocessed foods. Fresh fruits, vegetables, lentils, whole grains, starchy tubers or roots such as potato, millets, oats and foods from animal sources[5]
- Raw vegetables salads rich in fibre and sugar,
- Drink atleast 8-10 cups of water daily.

Regime: Avoid sleeping during the day (Divaswapna) and keeping awake at night (Ratri jagarana)

Assessment Criteria:

➤ Objective- PCFS Scale.

It is an Ordinal tool proposed to measure full Spectrum of functional outcomes following COVID-19. This Post- COVID-19” Functional Status (PCFS)scale can be used for tracking the functional status over time as well as for research purposes.

➤ Subjective/, mk-Gradaation of Symptoms

Observations and Results:

On comparison with pre-intervention conditions of the patient, there was a significant difference in patient post-intervention condition. The parameters of treatment which showed the following results.

A) Questionnaire

Sr. No	How much are you currently affected by the aftereffects of “COVID-19” (Please indicate which one of the following statements applies to you most)	PCFS Scale Grade	DAY 0	DAY 10	DAY 20	DAY 30
1	I have no limitations in my everyday life and no symptoms, bodyache, joint pain, depression or anxiety related to the infection.	00				✓
2	I have negligible limitations in my everyday life as I can perform all usual duties, although I still have persistent cough, joint pain, loss of appetite and anxiety	01				
3	I suffer from limitations in my everyday life as I occasionally need to reduce usual duties due to symptoms like body pain, metabolic dysfunction, anxiety but perform my duties without external assistance.	02				
4	I suffer from limitations in my everyday life as I am not able to perform all usual duties due to symptoms like body aches, joint pain, loss of appetite and anxiety. I, however, require external assistance sometimes.	03	✓			
5	I suffer from severe limitations in my everyday life and I am not able to take care of myself and therefore I am dependent on nursing care or assistance from another person due to symptoms like body aches, joint pain, loss of appetite, Anxiety etc.	04				

The Patient was at stage 3 of the scale at the time of commencement but significantly reached stage 2 on 10th day which remained same on day 20th. However,

uptill day 30, the patient gained stage 2 of the scale which may be recognized as a considerable improvement.

B) Subjective Criteria - Gradation of Symptoms

Sr. no	Symptoms	Intervention during Treatment			
		DAY 0	Day 10	DAY 20	DAY 30
1	<i>Jwarottar Daurbalya</i> (Generalised weakness)	++	++	+	+
2	<i>Kshudha Maandya</i> (Anorexia)	+++	++	++	+
3	<i>Aayas-Asahishnuta</i> (Dysnea on exertion)	+++	++	+	+
4	<i>Sandhi school</i> (joint pain)	++	++	+	+
5	<i>Urahshool</i> (chest pain)	+++	+++	++	+
6	<i>Nidranaash</i> (sleep disturbances)	++	+	+	-
7.	Anxiety				
		None-	Mild +, Moderate ++, Severe +++		

DISCUSSION

This study was conducted to rule out the Immunomodulatory activity of the most classic and specific group of drugs in treating Post COVID/Long-COVID symptoms without prescribing any external intervention. In this present study, patient was given a traditional combination of Ayurvedic *Rasayanas* in their respective doses for the time period of one month along with immune boosting Diet and Regime. The assessment was done on the basis of a **PCFS Scale** /A questionnaire

asked to be filled by the patient prior to the onset of therapy (Day 0), Day 10, Day 20 and Day 30 i.e. completion of the therapy respectively. Subjective parameters were assessed by the gradations of the symptoms observed before and after the treatment.

The study showed primary outcome of significant reduction in the symptoms of the disease as per PCFS Scale at the gradual speed with improvement in patients’ condition physically as well as mentally. Sec-

only in this case, no immediate side effects of the formulation reported but one cannot comment of long-term side effect at this time. Also, at the same time These formulations are time tested and safe as per several Ayurvedic research. Ayurvedic principles of diet and Living pattern (*Ahara- Vihara, Dincharya, Ritu-charya*) and Codes of conduct (*Achara-Rasayana*) that are very effective in prevention of infectious diseases

Pharmacological Action of Immunomodulators:

Immunomodulator is a substance which has the power to reinforce and support the immune system[7]. Immunomodulators stimulates the immune responses and facilitate greater immune flexibility in the body's natural response to the disease. It stimulates T-Suppressor cells and thereby reduce immune resistance. In Ayurveda, they can be co-related with *Rasayana* (Antioxidants) etc. which are promisingly effective in various infectious diseases as mentioned above in detail. Various research had been showed the immunomodulatory activity of drugs used in the case i.e. ***Ashwagandha, Tulsi, Pippali, Amalaki And Guduchi***. Hence, All the five drugs used in the formulation are selected on the basis of their homogenous *Rasa, veerya and vipaak* properties also considering their *rasayana* property as well. As mentioned earlier in the introductory part, COVID-19 can be co-related to ***Agantuja Sannipatik Jwara*** which can be considered as the *Tridoshaj vikaar* and hence, the management recommended is *Tridosh-gnha* at the same time *Deepan, Paachan and Agnivrud-dhikar*. All the five ingredients used in the study are well established and contains various distinct characteristics which are quite beneficial in treating *Jwarottar Daurbalya* i.e. in Post covid effects.

Ashwagandha: *Ashwagandha* has been trusted from years as one of the best immunomodulator and anti-inflammatory agent .Its extracts have been used as an aptogen or to build resistance to stress, or diseases in indigenous medical system in India for centuries(1) *Ashwagandha* enhances nitric oxide synthesis of macrophages which in turn microbial killing power of immune cells thereby enhancing the Cell mediated Im-

mune(CMI) Response. It is a proven herb in maintaining Sound Health, Immunomodulatory activity and combating infections. (10,14)

Tulsi: *Tulsi* perhaps, the best example of ayurvedic holistic lifestyle and combating infectious disease. Medicinal properties of *Tulsi* have been studied extensively which shows its Antimicrobial effect (including antibacterial, antiviral, antifungal, antihelmenthic etc.) it is considered as Potent Adaptogen i.e. herb helping to cope stress and promote homeostasis.(11,14)

Amalaki: *Amalaki*, the ultimate healer is the 'MOTHER' in performing job of total caretaker of one's body. It's the most potent rejuvenating herb. It's the ultimate healer due to its immune-restorative properties i.e. *Vyasthapana* (). Its the rich vitamin C Content helps in digestion, metabolism, normalizing liver functions with anti-ageing properties. Aso, anti-oxidant, immunomodulatory, anti-pyretic, analgesics, cytoprotective and gastro-protective actions.(12,14)

Guduchi: *Guduchi*, one of the Favorite drugs in Ayurveda and researchers across the globe because of its reported medicinal properties like anti-spasmodic, anti-oxidant, anti-inflammatory, anti-stress, immunomodulatory and neo-plastic. Also, traditionally known as *Giloy* is considered effective in treating fever, helps maintaining diabetes, makes our respiratory system stronger with also anti-ageing properties. (13,14)

Pippali: *Pippali*, being *Rasayana* is a very beneficial herb. It is known as "***Meda-kaphavinashini***" and acts as *Aamdoshahar, Kaphaavilayankar*. Helps in proper functioning of digestive system and respiratory system (pranvahastrotas) also. Thus, suppressing symptoms like *shwaas* (dyspnea), *kshudhamaandya* (loss of appetite). *Gaurav, Daurbalya* etc. It avoids accumulation of toxins in the body boosting the immunity system.(15)

CONCLUSION

On comparing the effects of drugs, before and after therapy, it is found that the formulation is effective and quite beneficial in treating the after effects of COVID-19. This study gives a huge hope for such infectious diseases and alternate solution for treatment. But another side of coin is that a single case does not establish

the hypothetical statement completely, large data is required to test the hypothesis. The study clarifies that the formulation works at the level of *Jatharagni* as well as *dhatwagni* and is thus useful in *tridoshaj vyadhis* where there is involvement of the immune system. The ingredients are cost effective and easily available throughout the country.

Finally, this formulation of five authentic *rasayanas* have undoubtedly shown their immunomodulatory action in the management of Post COVID care both as prophylactic and preventive treatment in helped in reducing the risk of infectious diseases in the near future.

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