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Herbal Remedies in Post-COVID Trauma: A Systematic Review

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The world has faced huge challenges throughout the endemic of COVID-19. The survivors of Covid too are facing health difficulties. The non-availability of specific treatments made researchers search for all the possible treatment regimens including traditional medicines. India has the greatest culture of Ayurveda. Indian government's AYUSH ministry has granted permission for use of ancient systems of medicine for treatment of some of the COVID-19 cases, especially which are not at advanced stages. Along with this certain reports are there which have shown the positive outcomes of Ayurvedic treatment of COVID-19. However, it is more beneficial to build the immune system of the host from a large population and its health perspective to avoid widespread infection and control the potency of the infectious viral particles. A vaccine can offer protection by boosting specific immunity in the host at the same time non-specific ways to improve host immunity are suggestible. This has carved a path for the use of ancient Indian therapeutic methods such as Ayurveda and Yoga. Although there are many general articles where the home remedies have suggested but, more scientific references are required to document the ayurvedic medicines for Covid related ailments. In this review, an attempt is made to organize available evidences of usefulness of Ayurveda, Yoga, in COVID-19.

Keywords: Ayurveda; Covid-19 survivors; Herbal remedies; Medicinal plants; Post-Covid-19 trauma.

The human fraternity has got one of the biggest lessons from the COVID-19 pandemic. Millions of deaths have occurred because of the SARS-Cov-2 disease after its outbreak in Wuhan city of the Republic of China in 2019. Almost every country (more than 220 countries) is affected badly due to this viral disease. Most patients of COVID-19 have mild to severe issues with the respiratory system. Also, many people faced cardiovascular problems. Especially, the elderly and people with other health problems like cardiovascular diseases, diabetic people, chronic respiratory diseases such as asthma, cancer patients, kidney patients, or patients who underwent some surgeries or transplantations have been highly vulnerable[1].

The major challenges in COVID-19 pandemic were the unavailability of specific treatments. However, the survivors who could overcome the infection are facing several health issues including respiratory problems, headache, nausea, painful joints, fatigue, and weakness. Also, a major number of Covid-19 survivors have complaints about neurological and mental health problems.

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A study has shown that 1 in 3 COVID-19 patients who survived and recovered from COVID-19 infection had neurological or psychiatric problems. Study was conducted for six months, during this study data of more than two lakh patients in the United States of America was included. Patients aged 10 years and above were involved in the study. The outcomes of the study then matched with the health records of more than one lakh people who had influenza and more than two lakh people who had other infections related to the lungs and respiratory system[2].

The conclusion of the study was that 34% of the coronavirus patients involved in the study showed signs of cognitive and brain-related disorders post-infection. While 17% of the patients came up with anxiety disorders, 14% were diagnosed with mood disorders. Apart from that, 7% of the individuals were prone to substance misuse disorders, and 5% with insomnia[2].

Plenty of literature is available now on clinical testing, preventive techniques, and management protocols for viral infections. Even the data about some of the issues of COVID-19 patients is also available. However, a systematic review of the post-covid health issues and their treatments is essential.

The present article attempts to gather information about various health issues faced by patients after recovering from COVID-19 and the herbal treatments available to them. Though, the actual health issues of the COVID-19 patients hospitalized in the corona divisions of the hospitals and the measures they tried during the COVID infections have been ignored. There are some online materials such as blogs, and videos posted by the people who were able to overcome the infections. They have shared their experiences related to their fight against the infection and mainly about their loneliness when they were admitted to the hospital. However, more details of these experiences are not available, except a few[3,4,5,6].

Ayurvedic/herbal medicines have been a major source for controlling various infections since ancient times. Several herbal remedies were clinically effective against SARS coronavirus (SARS-CoV) which has supported the idea that herbal medicine could be a good choice for prophylactic as well as treatment of epidemic diseases[7]. A review has reported that combining modern medicines with herbal preparations may improve health in SARS-CoV patients[8]. A significant reduction in the infection rate of H1N1 influenza with the use of herbal medicines has been observed in a meta-analysis[9].

The present conditions posed an urgent need for exploring the potential of different treatment modalities such as herbal remedies. Many of such remedies have been popularly used in outbreaks and epidemics such as SARS and H1N1 influenza[9]. A large population from countries such as India, China, and South Korea depends on herbal remedies for times, these preparations have been useful for controlling and managing COVID-19[10].

India has one of the most ancient methods of treatment and has been at the disposal of human beings for times. India has achieved great success in using its various treatment modalities and traditional medicine systems like Ayurveda, Homeopathy, Unani, Yoga and Siddha[11]. These ancient ways of medicine have their own practices leading to life in such a way that the diseases could be prevented as well as health could be promoted. There is a fundamental method in all of these traditional systems that these therapies are holistic and their modalities are mainly based on products of natural origin such as plants, animals and/or minerals. Ayurveda is popularly called as 'Science of Life'. Hundreds of different plants are used in Ayurveda in various ailments ranging from common cold to life threatening problems such as liver or heart[12,13,14]. Many of these plants have proven effective in immunomodulation (Table 1). The current situation has regenerated the interests of researchers in the ancient therapeutic systems, as these systems were proven beneficial in crises like the plague, Spanish flu or cholera etc. in earlier times. The use of this ancient knowledge of medicinal plants and preparations can be used in devastating conditions like the current pandemic. The current Covid-19 pandemic has disturbed the whole human race across the world. In a situation where there is no specific treatment for this infection, it is important to take efforts for controlling the spread of infection by strictly following hygienic practices, maintaining social distance and enhancing the immune system. There is a number of Ayurvedic preparations which have good immunomodulatory properties.

Table 1. Medicinal plants used in Indian traditional system and their immunomodulatory effects

No.	Name of Plant	Immunomodulatory effect	References
1	*Withania somnifera*	Helps in increasing Ig's, Cytokines, TBNKs	15
2	*Acacia catechu*	Increased phagocytic effect, increase in IL 10	16
3	*Adhatoda vasica*	Reduction in DTH reactiveness, release of anti-inflammatory cytokines adhesion of neutrophils	17
4	*Aegle marmelos*	Activation of cellular as well as humoral immunity	18
5	*Carica papaya*	Increased phagocytosis through interferon- gamma	19
6	*Cassia occidentalis*	Suppression of T- and B-lymphocytes	20
7	*Curcuma longa*	It reduces weight of Spleen, reduced proportion of CD4" , CD8+ T cells	21
8	*Mollugo cerviana*	Release of NO by peritoneal cells is enhanced	22
9	*Nigella sativa*	T lymphocyte and Spleenocyte proliferation is increased	23
10	*Ocimum sanctum*	Upregulation of IFN-ã and IL-4. Increase in T-helper cell and NK-cell percentage.	24
11	*Phyllanthus emblica*	B and T lymphocyte stimulated interleukin production considerably increased	25
12	*Solanum nigrum*	CD4+ cells increases whereas downfall in the CD8+	26
13	*Vitex negundo*	Activates macrophages and neutrophils	27
14	*Zingiber officinale*	Cellular immunity as well as the T lymphocyte number affected.	28
15	*Achyranthes aspera*	Affect immune system through cytokines	29
16	*Berberis aristata*	TLR7 signalling pathway is upregulated.	30

These preparations are being used for centuries in respiratory problems and/or allergic conditions. The Govt. of India's AYUSH ministry has enlisted several herbal formulations and suggested their use for prophylaxis in containment zones, red zones and corona warriors. Some of these formulations are already under clinical trials in COVID patients.

CONCLUSION

An assured treatment for COVID-19 has yet to be developed. This has created several health challenges for human being. Stimulation of immune system has been beneficial against viral infections. There are many plants which possess potential activity against allergy, inflammation. Studying their activities against COVID-19 would be important for drug development in this pandemic situation. Ancient ayurvedic knowledge of India has always been like a light house in the field of drug discovery and can be used as prophylactics, therapeutics and/or adjuvant drugs. Being timely tested and used for centuries in several communities their safety and clinical efficacy can be assured. Govt. of India's AYUSH ministry has published many guidelines to encourage the research in ayurvedic medicines and motivate researchers to take up the studies to develop herbal treatments against COVID-19. Several preparations and formulations from these ancient therapeutic systems could be supported by many evidences for their medicinal properties like immune-boosters, anti-viral and anti-inflammatory activities. Use of these formulations would offer a time window for development and trials of COVID treatment or vaccines. This initiative has induced the research in the field of herbal medicines for COVID-19 treatment and it has also been seen that a sizable portion of public and private funding is being invested for the clinical trials conducted by AYUSH. Government and different agencies of AYUSH ministry have sponsored more than 50% of these trials. The government may make the outcomes of these studies available at different public domains, so that the authorities responsible for policy making may restructure their policies for health of public. It would also provide results of the research to international scientific community, so that a common platform for collaborations at national and international levels. This review may give preliminary data for prioritization of plants for investigations at preclinical and clinical levels

and could come up with some lead molecules for the treatment of COVID-19. The study outcomes of herbal preparations suggested by AYUSH, the researchers and drug manufacturers may develop necessary strategies for taking the research further and may give more therapeutic alternatives.

Conflict of Interest

There is no conflict of interest.

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