



Relevance of Ayurveda and Herbal medicines during crises of pandemic COVID- 19

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ABSTRACT

Since December 2019, a respiratory pandemic named as coronavirus disease 2019 (COVID-19) caused by a new coronavirus named as SARS-CoV-2, has taken the world by storm. The symptoms are fever, malaise, and cough which resolve in a few days in most cases; but may progress to respiratory distress and organ failure. Transmission is mainly through droplet infection or fomites, but other modes such as airborne transmission and oro-fecal transmission are also speculated. Research is underway to develop effective vaccines and medicines for the disease.

Ayurveda is a traditional system of medicine developed during the ancient ages, which employs natural drugs of herbal, and mineral origin for treatment, which in turn reflects Ethnobotany of that particular region. Ayurvedic medicines not only cures the symptoms but also boost the immunity of the user.

In such a scenario, this review present the measures described in Ayurvedic system of medicine for health protection during epidemics and its role in translational medicine.

Key Words: COVID- 19, Ayurveda, Ayurvedic medicines, immunity, natural and herbal medicines etc.

BACKGROUND

An outbreak of pneumonia in Wuhan, China in December, 2019, was determined to be caused by novel coronavirus, named as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) [1,2]. Corona virus disease (COVID-19) is an infectious disease caused by a newly discovered virus named as corona. The disease later on spread to 216 Countries and Territories around the world, with more than 21 million confirmed cases and more than 761,000 deaths as of 16th August, 2020 [3]. Despite worldwide efforts to contain it, the pandemic is continuing to spread for want of a clinically-proven prophylaxis and therapeutic strategy. Consequently, it is necessary that scientific community must draw on pluralistic knowledge systems available globally.

While the disease is almost controlled in China [4], it is still widespread in Europe and US which have emerged as the new epicentres of the COVID-19 [5,6]. Leading the global Covid-19 tally is the United States with over 5 million total and 2 million active cases of coronavirus. The Covid-19 death toll in the US is the highest in the world. Brazil stands second in the world with respect to total coronavirus cases. India is the third country with most Covid-19 cases - 2 million. However, India's active cases stand at over 6 lakh. The government claims that the country's recovery rate is among the highest in the world with over 70 percent of patients defeating the contagion. The death rate, at 1.98 percent, is said to be among the lowest globally. Next in the list is Russia & South Africa.[3]

INTRODUCTION

The fact that no system of medicine has any evidence-based treatment for COVID-19 as yet, clinical interventions are being done worldwide. In the wake of the Covid 19 outbreak, entire mankind across the globe is suffering. Enhancing the body's natural defence system (immunity) plays an important role in maintaining optimum health. The ancient science of Ayurveda offers a diversity of formulations, treatments, and practices to help build immunity. We all know that prevention is better than cure. It will be good to take preventive measures and would be appropriate to put into use ayurveda to develop immunity among people during these trying times. Ayurveda interventions become even more relevant by the fact that there is an elaborate description of causation and management of epidemic (*Janapadodhwamsa*) in Ayurveda [7].

Our proposal complements the guidelines issued by Ministry of AYUSH, Government of India for boosting immunity among the masses [8]. However, it is not limited to prophylaxis alone. It addresses the therapeutic domain as well although within an integrative model of care. In that context, at a generic level, key criteria for choosing suggested Ayurveda medicines here have been safety and

potential efficacy, broad-spectrum applicability, ease of availability, long-term experiential knowledge on clinical use, ease of administration, and as far as possible, affordability [9].

IMPORTANCE

The literal meaning of Ayurveda is “science of life,” because ancient Indian system of health care focused on views of man and his illness. Ayurveda, the traditional Indian medicine, remains the most ancient yet living traditions. Although India has been successful in promoting its therapies with more research and science-based approach, it still needs more extensive research and evidence base. Increased side effects, lack of curative treatment for several chronic diseases, high cost of new drugs, microbial resistance and emerging, diseases are some reasons for renewed public interest in complementary and alternative medicines. Numerous nutraceutical combinations have entered the international market through exploration of ethnopharmacological claims made by different traditional practices.

In the present scenario, it seems to be logical and essential to explore how Ayurveda can help in addressing the COVID-19 challenge. Indeed, this is the time for mainstreaming the AYUSH systems to transform Indian healthcare[10] and demonstrate the potential of AYUSH systems in addressing the challenge and restoring health [11]. An understanding of COVID-19 epidemiology and pathogenesis as learned through on-going pandemic may help us drawing a feasible plan of action.

About 80% of COVID-19 cases present with mild symptoms requires only primary medical care. Of the rest 20% cases, 15% requires urgent medical attention at secondary health care services. Remaining 5% are critical cases requiring an intensive care and hence require a transfer to tertiary health care units equipped with ICU [12].

COVID-19 AND INDIA

Looking into the seriousness of the pandemic, India's Ministry of AYUSH and CSIR announced a slew of measures and clinical trials aimed at studying the use of some Ayurvedic herbs as a preventive treatment to front line workers and infected patients in India . Ayush mantralaya also issued some guidelines to be followed, which mainly includes intake of *Aayush kadha* and some immunity boosters natural herbs.

Ayush Kadha is an immunity herbal drink formulated by the ministry of Ayush for developing immunity and prevention of viral attacks, especially Covid19. It is recommended to drink Ayush Kadha twice a day, once in the morning before breakfast and once after dinner, before going to bed. It is a concoction of Tulasi, black Pepper, long pepper (hippali), Ginger (shunti), Cinnamon (dalchini), salt and jaggery. This is the remedy which was majorly used by Indians during lock down and unlock period. Various case studies suggest that Ayurvedic treatments have successfully cured corona patients in India. The present study aims to enhance the importance of Ayurveda and Ayurvedic medicines which not only cures the diseases but also act as immunity boosters. Some Herbal drugs are discussed below with their traditional uses [13-33]

Ashwagandha (*Withania somnifera*)

The renowned group of scientists from Indian Institute of Technology (IIT) Delhi, in collaboration with Japan's National Institute of Advanced Industrial Science and Technology (AIST), Japan, have found that one of the most potent and widely used Ayurvedic herbs, ashwagandha may prove to be the crucial medicine in fighting COVID-19.

It contains some natural biochemical compounds which can work the same way as other anti-coronavirus drugs. The use of ayurvedic medicines in some cases is also being studied for its prophylactic use and hence, has been termed as an anti-viral remedy.

Researchers used the properties of Ashwagandha to target some of the main illness causing enzymes in the body and split proteins, Mpro (Main protease) which help in replication and spread. It was observed that one of the compounds present in ashwagandha, called, Withanone (Wi-N) and another natural medicine, New Zealand Propolis are quite effective and useful in blocking and weakening the structure of Mpro. Hence, if used in the production of a COVID fighting vaccine, in the right quantity and dosage, ashwagandha can be helpful in dealing and might even help in preventing the spread of coronavirus. While researches are still being carried on, we do know that ashwagandha is considered to be one of the most superior and powerful Ayurvedic remedies, used for many purposes and benefits. It is quite effective in fighting common ailments like cold and cough and some respiratory ailments, which make it a potent remedy in fighting some viral diseases as well. Regularly consuming Ashwagandha can also supercharge your immunity. Experts actually say that increasing the dosage of ashwagandha during a sudden spike or onset of a cold can work really well in healing the body. The herb's natural immuno-boosting properties can also help you deal with chronic stress and fatigue which can come with viral infections. It is also known as an ayurvedic vitalizer which is good for the heart and the body. There is another way ashwagandha benefits you. Regular consumption of ashwagandha has been found to lower down or control stress and cortisol production in the body and even cut down on inflammation.

People of all ages should be ideally consuming ashwagandha and it absolutely safe. Depending upon your usage, taking 250-300 mg daily, for a month's time can do plenty of benefits for your health and wellness.

Neem leaves (*Melia azadirachta L.*)

It has strong health alleviating activity, used as a tonic and astringent that promotes healing. The extract has antispasmodic action. Its usage in Ayurvedic medicine for thousands of years has proved its detoxifying properties. It has shown most beneficial effects for the circulatory, digestive, respiratory, and urinary system.

Peeled ginger (*Zingiber officinale* Rosc)

The anti-inflammatory and antioxidant properties of ginger are often suggested in Ayurvedic studies as this herb stimulates metabolism and helps to boost immunity. One is advised to have 1/2 inch of freshly peeled ginger before their meal to gradually see a visible difference in immunity. Available at the comfort of our kitchen, ginger comes really handy and is super easy to use as an immunity booster. Ginger is considered an adjuvant in many Ayurvedic formulas in which it enhances absorption and prevents gastrointestinal side effects. It is a very common spice which is used in Ayurvedic medicine to improve digestion and to prevent nausea. These properties help bowel movements and relax the muscles which control the digestive system.

Giloy(*Tinospora cordifolia*) and Brahmi (*Bacopa monnieri*)

Every ayurvedic brand in the market has done an excessive study with fruitful results to make products consisting of these two magical products. Giloy and Brahmi are one of the oldest and most effective herbs that can be incorporated into daily regime to boost immunity, memory power, strength, and intelligence. It offers more than just one benefit and can be even be consumed in a fluid form.

Shatavari (*Asparagus racemosus* Willd)

A potent Ayurvedic rejuvenative. It supplies many female hormones and mostly recommended for those women who have hysterectomies. It also helps to maintain urinary tract and strengthens the immune system and also purifies the blood

Guggul (*Commiphora mukul*)

A major ingredient in joint and immunocare and regarded as a remedy in Ayurvedic medicine; it increase white blood cell count to possess strong immuno-modulating properties. It also protects against the common cold as well as used in various other conditions like lower cholesterol and triglycerides, while maintaining the HDL to LDL ratio.

Garcinia(*Garcinia cambogia*)

Fruits contain biologically active compounds (–) hydroxycitric acid, which is known to inhibit the synthesis of lipids and fatty acids. HCA inhibits the enzyme ATP-citrate lyase that leads to reduce production of acetyl CoA, which is a key substance in fat and carbohydrate metabolism. Therefore, formation of LDL and triglycerides is very low. It also suppresses appetite by promoting synthesis of glycogen. That way the brain gets signals of fullness and satisfaction sooner. Garcinia contains significant amounts of vitamin C and used as a heart tonic.

Yashtimadhu, Licorice(*Glycyrrhiza glabra* L.)

It is a versatile medicine in India and China, for gastrointestinal health. It is a mild laxative, soothes and tones the mucous membranes, and relieves muscle spasms. It is an antioxidant, cancer protecting, botanical boosting, and certain immune functions such as interferon production. Its mode of action is as an antimutagen, preventing damage to genetic material that can eventually result in cancer.

Guduchi (*Tinospora cordifolia* Miers)

Guduchi is a rich source of natural vitamin C and effective in inhibiting the growth of bacteria and in building up the immune resistance and has immune-boosting ability. Use of this plant increases white blood cells the killing ability of macrophages, the immune cells responsible for fighting invaders.

Pippali, Indian Long Pepper (*Piper longum* L.)

Pippali is a powerful stimulant for both the digestive and the respiratory systems and has a rejuvenating effect on lungs. It plays an important role in release of metabolic heat energy. This effect is the result of increased thyroid hormone level in the body. Pippali a typical Ayurvedic complementary component whose benefit is to increase the bioavailability and enhance absorption of the other active ingredients

Haritaki(*Terminalia chebula* Retz.)

Haritaki is a safe and effective purgative, expectorant, and tonic. It is an important ingredient of the classical Ayurvedic formulation “Triphala” which has a combination of three fruits. Tiphalpha is an important Ayurvedic medicine, which promotes health through successive steps of purification and detoxification. It is known to have strong antimutagenic activity, because of its very rich content vitamin C.

Maricha (*Piper nigrum* L.)

Common name is Black pepper .The black pepper is one of the most important spices which is widely used to amplify the body's ability to absorb nutrients contained in the food and aid the digestive process.

Conclusion

COVID-19 is responsible for causing a large number of deaths even in medically and technologically advanced countries like USA. This is presumably due to the absence of a proper treatment protocol in MWM to address this condition. Many cases in India were reported to show that COVID-19 is a condition where focused Ayurvedic treatment, if given, may prevent the deterioration of the disease into a more critical condition. The symptoms shown in patients given AYURVEDIC TREATMENT were not mild. However, they didn't become critically ill owing to Ayurvedic intervention and regulated diet.

India is in a position to use the wealth of knowledge available in the Indian Systems of Medicine, to cure this disease and control the pandemic. This is also an invaluable opportunity for demonstrating the efficacy of Ayurveda.

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