

Complementary Medicine Claims And COVID-19: A Narrative Review

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Abstract

Background:

Coronavirus 2019 (COVID-19) has been at the center of researchers' attention from the beginning of the pandemic due to its global prevalence, and researchers have been conducting many studies and tried a variety of medicinal approaches to combat this pandemic. They aim to find a way to prevent or treat the condition. Every day brings fresh debates and developments, and social media abound with discussions and remarks associated with this global health challenge. Profiteers, on the other hand, promote false information among the public about the treatment of COVID-19 disease despite their limited scientific information and expertise. Several pharmaceutical companies commercialized their herbal-based products during the COVID-19 pandemic. Traditional medicine is mainly rooted in Iranian, Chinese, and Indian traditional medicine, acupuncture, and aromatherapy. A vast amount of information and treatment tactics has been spreading based on the theories in this field. However, in some cases, not only do these have no effect on disease treatment, but they can also have additional negative effects on the person's health and spread viruses even further. Therefore, more scientific studies are needed on the effects of traditional and alternative medicine on the prevention and treatment of COVID-19. Studies performed in this regard have drawbacks, such as a lack of a control group, quality evidence, randomization, and blinding methods, as well as imprecise assessment indicators, and long-term follow-up period. A few of these claims and treatment approaches are discussed in the present study.

Keywords: Acupuncture, Complementary therapies, COVID-19, Herbal medicine, Traditional Chinese medicine, Traditional Iranian medicine, SARS-CoV-2

Introduction

A severe form of acute respiratory distress SARS-CoV-2 pneumonia, which was identified as a new infectious disease, spread around Wuhan city of China swiftly⁽¹⁻³⁾. Within a short time, the disease spread to other parts of China and numerous countries worldwide across the six continents. The World Health Organization (WHO) declared the disease the 2019 new coronavirus (i.e., 2019-nCoV) on January 7, 2020, and called the illness caused by 2019-nCoV the "Coronavirus disease 2019" (COVID-19) on February 11, 2020 [3]. COVID-19 could lead to a wide range of

symptoms in many body organs, from classic symptoms of fever, myalgia, and cough, to gastrointestinal, neurological, cardiac, ocular, and cutaneous manifestations⁽⁴⁻⁷⁾. That the patterns of symptoms were changing all time during the pandemic⁽⁸⁾. Also, symptoms varying in different ethnicities⁽⁹⁾ and age groups⁽¹⁰⁾. There are two main clinical systems for disease prevention or treatment: 1) Modern medicine, which is experimental medicine based on current scientific clinical evidence. 2) Complementary and alternative medicine including Ayurveda, Homeopathy, Unani, as well as Traditional Chinese medicine (TCM) which is based on traditional Chinese practices and beliefs, and primarily consist of herbal formulations in addition to acupuncture, dietary therapy, and Persian complementary medicine (PCM)⁽¹¹⁾. There are a lot of debates and opinions on social media⁽¹²⁾. Some of the mental stresses caused by health problems include fear, skepticism, worry, and anxiety⁽¹³⁻¹⁴⁾. Every day, new debates, discussions, and troubling developments appear. Many people are in a state of panic which gives rise to the easy spread of rumors and conspiracy theories^(12,15). While throughout history, plants have provided human beings with countless compounds with medicinal properties, claims in era of COVID-19 should be closely followed and reviewed due to potential threats for public health. The present study examines a few of these claims and treatment approaches by reviewing some of the studies conducted in this field.

Persian Medicine and Iranian Plants

Plants have also been instrumental in the discovery of countless drugs. Plant compounds can have antibacterial, antivirals, and antifungal properties and act as immune system boosters⁽¹⁶⁾. In addition, a significant reduction in treatment costs is another factor that makes people turn to traditional and/or alternative medicine⁽¹⁷⁾. Persian Medicine is also queried for recommendations matching the COVID-19 treatment for candidates⁽¹⁸⁻²⁵⁾; while few clinical trials are performed and evidence is rare. Setayesh et al. investigated a formula including *G. glabra*, *P. granatum*, *R. palmatum*, and *N. sativa* and found that this could be beneficial when using adjuvant to conventional COVID-19 treatment⁽²²⁾. Hajibeygi et al. investigated a dietary intervention based on the Iranian Medicine recommendations with more than 6 herbal agents⁽²⁵⁾.

SARS-CoV2 and potential herbal agents

The design and development of drugs and vaccines require clarification of the SARS-CoV-2 mechanism⁽²⁷⁾. After a person is infected by viruses, an inflammatory process will be triggered in the body which results in life-threatening symptoms by cytokine storm mediated by ACE2 impairment and many other known and unknown pathways⁽²⁸⁻³⁵⁾.

Several plants produce compounds that interfere with these proteins and can be used as drug targets. These include phenolic plant compounds⁽³⁶⁾, extract of roots of *Isatis indigotica*, luteolin from *Veronica linifolia*⁽³⁷⁾, herbacetin, and quercetin⁽³⁸⁾.

However, these kinds of public reactions were enhanced in the absence of solid research findings on the effectiveness of such herbal products on the control of COVID-19. However, some of these effects will be discussed in the following paragraphs. Medication candidates in numerous studies have been utilized as antivirals or immunomodulators, however, the findings of studies revealed that the drug candidates were ineffective in combating the condition.

The combined use of herbal medications and conventional drugs might result in unexpected adverse outcomes for patients or worsen their condition due to unknown drug-herb interactions⁽³⁹⁾.

Some Echinacea-based commercial products are claimed to have an immunomodulatory impact and reduce inflammatory cytokines⁽⁴⁰⁾. As previously stated, COVID-19 activates the cytokine waterfall.

Curcumin is another example of the unknown or contradictory effects of plant compounds on the human body system and its function. Evidence suggests that Curcumin could modify immune function and could be used for COVID-19 treatment based on the immunological hypotheses⁽⁴¹⁻⁴³⁾.

“Quinine” is another natural ingredient that has yet to be studied regarding its effectiveness in the treatment of COVID-19. Quinine is mentioned to have some roles in increasing the expression of IFN- α and limiting the proliferation and translation of infected host cells. However, previous investigations revealed that quinine could have a variety of adverse effects, including immune-mediated reactions and toxic reactions⁽⁴⁴⁻⁴⁵⁾.

The administration of these herbal remedies should be done with caution. The reason for this recommendation is the high prevalence of conflicting information about these agents. Furthermore, these herbal medicines underwent no preclinical or clinical trials regarding their effectiveness on COVID-19 prevention or treatment. Therefore, more research is needed to be done in this regard⁽²⁹⁾. Moreover, any long-term negative consequences of these interventions must be determined as well.

It is recommended that laboratory testing should be performed and patients closely monitored for any short- or long-term damage caused to different organs⁽³⁹⁾. Therefore, suggested candidates for COVID-19 treatment should be followed in long-term investigations⁽⁴⁶⁾.

The effectiveness of acupuncture in conjunction with normal COVID-19 treatment is unknown. The inadequate clinical trials conducted on the effectiveness of acupuncture are the greatest obstacle to its application in the treatment of COVID-19⁽⁴⁷⁻⁴⁹⁾.

Acupuncture

Acupuncture is also recommended for COVID-19 symptoms in studies conducted during the pandemic. Acupuncture and related techniques have been used to treat all typical COVID-19 symptoms, such as vomiting, nausea, sleeplessness, and shortness of breath, exhaustion, stomach discomfort, anxiety problems, and inflammatory stress^(50-53, 47). However, the fundamental mechanism of COVID-19 acupuncture treatment is unknown. Although acupuncture has been shown to be effective against COVID-19^(47, 54-55), no study has yet investigated its working mechanisms⁽⁴⁸⁻⁴⁹⁾. Nevertheless, it has been shown to have fewer adverse effects, compared to other therapeutic interventions⁽⁵⁶⁾. It should be noted that while working with infected patients, practitioners must ensure that they are adequately protected. The performance of acupuncture in a protective suit in the hospital setting can provide this protection to a great extent (due to its challenges)⁽⁵⁷⁾.

Conclusion

The application of traditional and alternative therapeutic interventions in the COVID-19 prevention and treatment requires more scientific research. Most often, decisions have been made based on inadequate evidence, and are often influenced by familiarity, popularity, and/or availability. The drawbacks of some studies performed in this regard include a lack of a control group, quality evidence, randomization, and blinding methods, as well as imprecise assessment indicators, ineffectiveness, and long-term follow-up. In addition, most meta-analyses demonstrated very low or moderate effects of these herbal products on the treatment of COVID-19 infection. Herbal medicines should be evaluated clinically using appropriate and compatible methods. Moreover, quality studies in terms of methodology need to be carried out as well. Eventually, it is important to provide regular updates to the published reviews to achieve data balance in this regard.

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Author contribution: Authors contributed equally in the study.

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