

CORONAVIRUS COVID-19

HEALTH CARE AND TCM CONSIDERATIONS

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Coronaviruses: 50 years of investigations

Viruses were discovered about 130 years ago and found to infect bacteria, plants, and animals, including humans. Coronaviruses first became a subject of intensive attention by researchers about fifty years ago, primarily because these viruses were responsible for disease in livestock, including cattle, pigs, chickens, and turkeys; the primary manifestation was diarrhea (viral enteritis) in young animals. These viruses also were found to affect dogs and humans. The group of coronaviruses is widely distributed and known to most people, though not by that name, through experience of the common cold, an upper respiratory infection rather than an intestinal disorder. Coronaviruses mutate easily, some more so than others, and that is the reason that there is not a vaccine for the common cold: its inherent variability. There have been two outbreaks of new coronaviruses in humans in recent years, believed to have originated from the animal population: SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome). Unlike the diarrhea-causing and nasal congestion causing earlier emergences of coronaviruses, these cause lung distress. Although alarming, these two epidemics came under control and are not a current cause of immediate concern, but they do demonstrate the potential for emergence of new (“novel”) coronaviruses that affect humans. The coronavirus of concern today could become a routine part of the human population or it might be brought under full control. At the time of this writing, it has been reported that two variants of the virus were found by Chinese scientists, one more aggressive than the other.

Wuhan, China outbreak

During autumn 2019, probably in late November, a new coronavirus for the human population appears to have been transmitted from one or more wild animals; this most likely occurred at a large market (known as a seafood market, but also having other animal foods) that serves Wuhan City of Hubei Province, China. The reason for this suspected location is that among the initially affected people, most had been to this market. An ophthalmologist working in the area observed several individuals displaying the disease symptoms and provided an alert at the end of December. However, it took several more days before authorities in China acknowledged that there was an epidemic developing and by that time several thousand individuals had become infected, some of them traveling to other parts of China. Due to the high level of international travel, some infected persons went to other countries and served as the starting point for new outbreaks. Based on statistics for known cases of this coronavirus, there are about 4,000 people infected worldwide each day at this time (late March). This figure reflects only a fraction of the total actual cases. A good resource for tracking cases and other relevant data is: <https://www.worldometers.info/coronavirus/>

The likely animal vector, though not confirmed, would be a bat, one collected from the wild to be used as food; it would have been present at the market as a live animal. It has been suggested, alternatively, that there was an intermediate animal vector, thus from a bat to another animal to humans. The animal virus, long confined to only a few animal species, had likely mutated to allow for human infection as well. One way that this can happen is humans convey a corona virus to animals, and there is then a mixing of genetic material between the human and animal variants, producing a new virus expressible in humans. Once the virus is transmissible by ordinary means, mainly droplets of mucus that contain virus particles, the virus can spread rapidly. The virus transmits from human to human by the same means as the common cold virus, which is also by the same means as influenza. The Wuhan coronavirus can cause a serious pneumonia, and unlike common cold, which usually does not produce a fever, this one, dubbed 2019-nCoV and then Covid-19,

characteristically yields a fever. Pneumonias are potentially fatal, as they impair lung function by filling alveoli with fluid, reducing oxygenation of the blood. Although only a small fraction of those infected develop pneumonia, with Covid-19, the severity of pneumonia symptoms is high. The presence of comorbidities (other serious health problems) is what turns an acute and temporary infection by the coronavirus into a fatal outcome; this is the same situation as occurs with influenza, a disease that causes unpleasant symptoms most of the time, but in people with other health problems can cause death. To put the Covid-19 epidemic in perspective, statistics for influenza are often applied: in the U.S. influenza strains produced cases in the 2018-2019 season, were estimated by Centers for Disease Control at about 34 million, with over 34,000 deaths. The influenza death rate would be much higher were it not for a reasonably effective vaccine that is especially given to individuals at risk for fatal outcome, such as the elderly.

There have been speculations about a different origin of this coronavirus because the city of Wuhan has a biotechnology lab, so the thought is that some mutated virus escaped the lab and its origin had nothing to do with animal sources. While such a scenario is not impossible, it is an unlikely explanation and the reasoning behind it—that some people who came down with this disease were not at the market—makes no sense, since people carry the virus to other parts of the city. Coronaviruses are certainly a potential subject of study in a biotechnology laboratory, especially in relation to developing treatments for them, but those who suspect the lab seem to be thinking that this is some kind of weaponized virus, and that also makes little sense, since the direction of such work is toward strategic targeting of effects. The explanation of transmission from animals fits with prior novel coronavirus events as well as with other new human viruses, such as HIV (thought to have been transmitted from monkeys, which have a similar virus).

China has responded by shutting down the wild animal stalls at markets, but this needs to be a long-term management. China has had persisting problems with wild animal sales, as they can include endangered species, as well as potential for transmission of diseases. In America, by contrast, virtually all food, except some seafood, is from raised stock with oversight of regulatory agencies. Some local markets may provide hunter-collected venison or other such items, but these are from a limited range of species, and handled under conditions that are mostly well-controlled as a matter of course in the particular social and regulatory setting.

Transmitting the virus

Viruses are not living organisms. They are relatively small segments of genetic material (DNA or RNA) encased in a protective and potentially active (through very limited mechanical adjustments) exoskeleton of proteins (glycoproteins, sometimes with a lipid coating). Viruses are entirely dependent on living organisms to reproduce. The exterior portion of the virus particle has not only a protective action for the encased genetic strand, but also contributes to aiding the genetic material getting into certain cells. Once inside, the genetic material can be reproduced with the help of the cell's own machinery for making its required substances: copies of the gene strands and encasing proteins. After making lots of replicas of the virus, these are ejected from the cell, often just exploding the cell, and then those numerous replicas can repeat that pattern upon encountering another cell of the same individual or a separate individual and do the same again. An immune system response eventually controls the virus, at least, if the virus does not kill the host.

Respiratory system viruses are often transmitted by a common route: the viruses are shed into the mucus and emitted into the air and/or onto a surface, then transferred to another person. To gain entry into the body to begin an infection and generate the disease, the respiratory virus gains entry into the nose, eyes, or mouth, though oral transmission may be less effective due to protective activities within the oral cavity.

The two principle routes for infection are direct transfer and secondary transfer. A direct exposure is exemplified by sneezes and coughs that spread tiny droplets of mucus into the air and those may be breathed in directly or may land on a person who then transfers it to a site of entry into the body. An indirect exposure

is where such droplets land upon a surface (other than of the person ultimately infected) from which the virus can gain access to the next individual: this occurs by such actions as touching a surface with viable virus particles. For example, the hand of an infected person touches their nose or eyes or face, picks up some virus containing mucus; this is then transferred to another person (for example, by shaking hands) or to a surface such as a door handle, which is then touched by another person, and from the hand of the recipient of the virus, it may then go to the nose, eyes, or face, and make its way through natural processes to the mucous membranes, and begin its reproductive cycle. A person can sneeze into a tissue or handkerchief, but if any of the mucus gets onto the hand in this process, the virus can then be transferred.

Most viruses need to have a moist condition to be viable. Therefore, once some virus-containing bit of mucus dries out completely, the virus is no longer a threat. So, surfaces are temporarily infected and if left alone to dry, become safe to contact. The survivability of respiratory virus on surfaces varies depending on the nature of the surface, temperature, light exposure, ambient moisture, and the particular viral characteristics. For most of the viruses, they will become non-viable within hours of drying out. Tests of Covid-19 indicate survivability on surfaces for 1-3 days, but that is when there is not any active process of drying.

A program of “social distancing” has been developed, in which people are asked to remain at least six feet apart. The benefit of this is often misunderstood. If people stand six feet apart, but stay in place for a long time, the virus can still be transmitted. The six foot rule works for short term interactions.

So, here are the instructions for not getting an infection (common cold, influenza, Covid-19):

- If you are sick, don't go out in public, stay home. If you can't catch a sneeze or cough in a tissue, handkerchief, etc. because you don't have the chance to do so, try to catch it in your elbow: that is, try to not allow what comes from your mouth and nose to go to the air or to your hand.
- If you are not sick, and want to avoid getting sick, minimize being in crowded places (where an infected person is likely to be among the people present) and be careful about touching surfaces that you can avoid.

These two recommendations, which are a limited type of quarantine, are accompanied by the primary rules:

- Wash your hands frequently, and use soap and water. Anti-infection solutions, such as made with alcohol, can also be used with good effect.
- Don't touch your face. It is normal to touch one's face for a variety of reasons and often done without thinking about it. Attention must be given to avoid doing so. If necessary to do so, wash up first or use a clean cloth or other material to intervene between hands and face.
- As described below, a mask may be used to avoid breathing in viral-laced droplets, but only if used properly for a short duration (otherwise, it can make the situation worse rather than better).

The skin of your face is not going to be permeable to the virus; the concern is that if there is any moisture present, the virus can migrate to its main entry points, such as nose and eyes, even if those areas are not touched directly. This migration is furthered if hands are used to touch the face and thereby unintentionally cause the migration to susceptible areas.

This advice is intended both for protecting oneself but especially for protecting others. Your consideration of the impact on others should be very important. A virus like Covid-19 may have minimal impact on you, but could have a major impact on another person who gets the virus from you and who has other health problems that turn this infection into a life and death struggle. Also, you do not need to be sick to transmit the virus: virus containing fluid can get onto you and you can transfer it to someone else, and you might never get the infection. Protect other people your good hygiene and consideration can avoid causing serious

consequences. These measures could, if brought to an extreme, disrupt normal human interactions, and so the extent of avoidance behaviors have to be reasonably moderated according to the actual threat assessment.

Face masks are routinely used in Asia for the intended purpose of preventing disease transmission of respiratory infections. For the most part, these are ineffective and, for some individuals, actually make matters worse. Many of the masks that are obtained are not true “surgical masks” but are dust masks or masks that intended for very short term use. There are two particular problems that the usual masks have which make matters worse. First, because they are not intended for prolonged use and move about the face, it is common for people to regularly make adjustments to the mask. The problem is that this can result in touching the face more than would be done otherwise. Second, because the masks cover mouth and nose, the moisture of the breath can build up on the face, and thus make it easier for the virus to migrate to an entry point. Well-fitted masks used for a short period of time, such as when it is necessary to be in close contact with someone who might have an infection, can be helpful. Wearing a face mask around while out and about is probably not a good idea. Use of facemasks in a highly contaminated area can make sense, but not in areas of low disease incidence. Also, high quality surgical masks should be reserved for the medical professionals that need them.

Immune system

The immune system is extraordinarily complex. There are a wide range of immunological responses to a pathogen getting into the body. Whether a person has a strong or somewhat weakened immune system, the response of it is not very potent when the pathogen is a new one. This is because one of the immune system mechanisms of importance is its ability to maintain a “memory” of a past infection so that when the same pathogen returns the immune system springs into action with a set of responses that had to be worked out over time during the first exposure. This immune system memory is the basis for the success of vaccinations. A vaccine gives a part of the infectious agent, enough for the immune system to work on, without giving the disease (vaccines can have parts of a virus, killed virus, or impaired live virus). A vaccine is keyed to the disease pathogen, so that when the virus comes along it is attacked rapidly, and the disease that the pathogen could cause does not arrive, even though the virus got into the body.

There are some people with severely impaired immune functions, such as those who are undergoing highly active chemotherapy for cancer, or immune suppression to allow a transplant, or as a result of an immune system damaging disease (like HIV infection). These individuals, while their immune system is impaired, may get infections that others won't get.

There are a wide range of substances claimed to “boost” the immune system, things like vitamins (especially C and D), antioxidants, and many herbs, such as ginseng, ashwaganda, echinacea, garlic, and elderberry. While these may have a slight effect on susceptibility, overall, the experience of a virus infection is dependent on whether or not one is exposed to the virus and whether or not there is an immune memory (from prior exposure to the same or similar pathogen or a vaccine). The idea that a person won't get sick from these viruses because of taking some supplements remains unproven; however, continued use of these supplements may help reduce severity of disease. Perhaps the longest standing claim is that high doses of vitamin C prevent the common cold; results of studies have been mixed, but the evidence leans toward no effect. The limited role of supplements does not mean there can't be a better chance of avoiding sickness when exposed to a respiratory virus: the key to a successful immune response is to be found *primarily* among the fundamentals of being healthy. These include: a healthy respiratory system that is maintained by adequate physical activities to keep the mucous membranes working well; a nutritious diet that provides essential nutrients so as to have a full functioning immune response; minimizing disease-promoting conditions, such as having diabetes, heart disease, lung disease, etc., and when those are present, keeping them under good control; and having stress control regimens to respond to ongoing or newly arising stressful situations. These, along with good hygiene, are the barrier to experience of disease.

How Covid-19 got into the U.S. community

Action was taken early on to block entry into the U.S. of people who had been to Wuhan, or to Hubei Province, or to China generally as the location of the primary infection site enlarged. Some individuals were brought under careful quarantine conditions to the U.S. for care here, and those patients were known, monitored, and contained. Up until end of February, all the U.S. cases were either those brought here intentionally or those who were determined to be infected at time of arrival to the U.S., with a couple of exceptions of spousal transmission (e.g., a woman came from the Wuhan area to the U.S. and was known to be infected, but her husband, who had not been to China, became infected by contact with her). Then, end of February, a number of instances of viral infection with no known connection to being at a location where the virus was established (such as China) or to being with one of the known or suspected infected persons were detected. How did those people get into the U.S. with the virus so as to infect others? The primary entry occurred in the first days this virus. People arriving at airports were being asked about where they had been and were being monitored for fever. But, asking about prior travel does not always get a clear and honest answer (especially when the individual is looking at a two week quarantine and does not wish to convey a possibility of being infected) and fever may not show up for several days or, for some individuals, at all. As importantly, while restrictions for people coming from China came early, visitors from Italy, which was developing as an infection hot spot, continued to arrive. Thus, a few got by the barriers that were quickly put in place, and they were then able to infect others who could then infect others. Since the disease condition can be very mild, these individuals might have no knowledge that they have Covid-19, and would not have gotten tested. Again, some may have gotten fairly ill, but resisted going for testing and treatment to avoid quarantine requirements and also avoiding the stigma of having transmitted the virus to others.

Severity of Covid-19

Some commentators have suggested that about 80% of cases are mild in nature, about 15% are serious, requiring treatment, and about 5% are very serious, with potential for death, mainly because of other health problems of the individual. The currently reported rate of deaths/infections worldwide is around 4%, but because mild cases are underreported, a rate of fatality less than 1% is likely. This is still higher than the far more common influenza virus which has a fatality rate of about 0.1% (except for certain flu strains that elevate risk for serious consequences). The fatality rate in the U.S. is relatively low, but the concern is that increasing numbers of infected individuals can overwhelm the medical response.

The primary negative impact of the disease is development of a smothering pneumonia that is, at this time, difficult to treat. As breathing becomes more labored, and as blood oxygen levels decline, patients with underlying health problems are at high risk of dying of the disease. In the U.S., the initial deaths from Covid-19 were from resident elder care facilities. Basic symptoms of the milder level of disease include a fever with shortness of breath or other manifestation of labored breathing.

Is this virus seasonal?

The Wuhan Coronavirus emerged at the same time as influenza season, which may have disguised initial cases. This season is also one for transmission of other respiratory viruses, including common cold and pneumonia (bacterial and viral). The reason for seasonality is not fully understood, but in areas of the world with seasons as experienced in the United States and Europe, cold weather tends to put people into indoor areas closed off from the outside, and there may be slower drying of pathogen-containing fluids (e.g., droplets from sneezing and coughing) because of less airflow, lower temperature, and less UV exposure from the sun.

If the Wuhan variant of coronavirus displays similar characteristics, as is expected, the rate of spread should decline notably by late Spring from seasonal impact as well as the influence of efforts to contain the virus by various means, including less attendance at otherwise crowded events, quick diagnosis, and quarantine, will have an overlapping timeline, and could greatly markedly reduce new infections.

Chinese medicine

As has occurred previously with epidemics in China, such as with SARS, traditional Chinese medicine (TCM), especially herbal medicine, has come into the picture. The level of effectiveness is not readily assessed, but the ideas about which herbs to try have been publicized. There are two dominant approaches:

- 1) Relying on well-known traditional prescriptions in their traditional form or with slight modifications: this is the same method as used for most diseases identified by modern medical investigation, in which traditional formulas that address similar conditions are tried first. Thus, traditional doctors could not know about coronaviruses, but they are familiar with feverish diseases, lung disorders with shortness of breath, and any other symptoms presented by those with coronavirus infection. Sometimes new formulas are designed but they have the same appearance in terms of formulation strategy as more ancient formulas.
- 2) Relying on modern research into herbs which demonstrates that some of them have broad spectrum anti-bacterial and/or anti-viral action: often, but not always, these herbs have had some use in treating infectious diseases since earlier centuries, even though the physicians of the time did not have a full understanding of the pathogens involved, but sometimes the herbs were mostly used for other conditions and were revealed in the laboratory to have potential for anti-pathogenic activity.

The first method is represented in a paper compiled by John Chen and Lori Hsu with formula recommendations from China. These are decoctions of crude dried herbs; gram quantities are the amount for a one day dose. The ingredients list, ingredient dosing, and formula designation is from the provided report; common names and comments from the current author as well as any notations in brackets, have been added.

Prevention Phase, Pneumonia Prevention #1 [modified Jade Screen Formula]

Pin Yin	Common Name	Grams	Comments
Huang Qi	Astragalus	15	
Bai Zhu	Atractylodes	10	prefer dry fried
Fang Feng	Siler	10	
Guan Zhong	Dryopteris	10	not available
Jin Yin Hua	Lonicera	10	
Chen Pi	Citrus	6	
Pei Lan	Eupatorium	10	contains pyrrolizidine alkaloids

[Note: by “prevention phase” this does *not* mean taking the formula long term. This is intended for high risk situations and for initial exposure with early symptoms]

Influenza Phase, Flu Formula #1 [disease onset is evident; modified Pueraria Combination]

Pin Yin	Common Name	Grams	Comments
Ge Gen	Pueraria	15	
Ma Huang	Ma-huang	10	not available
Gui Zhi	Cinnamon twig	6	
Bai Shao	Peony	15	
Sheng Jiang	Ginger (fresh)	10	
Gan Cao	Licorice	10	
Da Zao	Jujube	10	
Jin Yin Hua	Lonicera	20	

[Note: according to the text provided, with headache, add Bai Zhi, Angelica, 15 grams; with dry scratchy throat, add She Gan, Belamcanda, 15 grams]

Influenza Phase, Flu Formula #2 [lungs are affected; modified Lonicera and Forsythia Formula]

Pin Yin	Common Name	Grams	Comments
Jin Yin Hua	Lonicera	10	
Lian Qiao	Forsythia	10	
Jing Jie	Schizonepeta	10	
Niu Bang Zi	Arctium	10	
Bo He	Mentha	10	
Gan Cao	Licorice	10	
Dan Zhu Ye	Lophatherum	10	
Lu Gen	Phragmites	15	
Huang Lian	Coptis	6	

Symptom Alleviation Damp Cold Formula #1 [Modified Magnolia and Ginger Formula]

Pin Yin	Common Name	Grams	Comments
Cang Zhu	Atractylodes, red	15	
Chen Pi	Citrus	10	
Hou Po	Magnolia bark	10	
Huo Xiang	Pogostemon/Agastache	10	
Cao Guo	Tsao-ko	6	
Ma Huang	Ma-huang	6	Not available
Qiang Huo	Chiang-huo	10	
Sheng Jiang	Ginger, fresh	10	
Bing Lang	Areca seed	10	

Pneumonia Phase, Pneumonia Formula 1 [Modified Minor Bupleurum Combination]

Pin Yin	Common Name	Grams	Comments
Chai Hu	Bupleurum	24	
Huang Qin	Scute	9	
Sheng Jiang	Ginger, fresh	10	
Ban Xia	Pinellia	12	
Ku Xing Ren	Apricot seed	15	
Bai Dou Kou	Cluster	10	
Yi Yi Ren	Coix	30	
Dan Zhu Ye	Lophatherum	15	
Hua Shi	Talc	15	
Tu Fu Ling	Smilax	30	
Gan Cao	Licorice	10	

Pneumonia Formula 2 [Blended traditional prescriptions; more severe or advanced pneumonia]

Pin Yin	Common Name	Grams	Comments
Ma Huang	Ma-huang	10	not available
Ku Xing Ren	Apricot seed	10	
Yi Yi Ren	Coix	30	
Huang Lian	Coptis	6	
Ban Xia	Pinellia	10	
Gua Lou Pi	Trichosanthes fruit rind	10	
Cao Guo	Tsao-ko	10	
Zhi Mu	Anemarrhena	10	
Yu Xing Cao	Houttuynia	15	
Gan Cao	Licorice	10	
Bai Dou Kou	Cluster	9	

The document from Chen and Hsu list three more pneumonia formulas, not so practical to use here, so are not conveyed. I received a personal communication indicating that an accomplished TCM doctor in Beijing said that he has had some success with this disease using the traditional formula Ren Shen Bai Du San (Ginseng and Mentha Formula), presumably for the treatment of initial symptoms. This formula is traditionally applied to patients of weaker constitution (hence the inclusion of Ren Shen, ginseng, along with Gan Cao, licorice to tonify qi) who are experiencing an acute respiratory disease. It has herbs that “dispel wind and regulate the surface,” including Qiang Huo, Du Huo, Chuan Xiong, and Chai Hu (chiang-huo, tu-huo, cnidium, bupleurum, respectively) and herbs for phlegm-damp accumulation: Jie Geng, Zhi Ke, Qian Hu, and Fu Ling (platycodon, chih-ko, peucedanum, and hoelen, respectively).

The formula Shuang Huang Lian has been the subject of inquiries to ITM, so is presumably mentioned as a potential therapy elsewhere. This formula is described by an ITM article produced several years ago. The formula contains three herbs: Jin Yin Hua (lonicera), Huang Qin (scute), and Lian Qiao (forsythia), two of these herbs being central anti-infection agents in Yin Qiao San. Herbs and formulas that were recommended in China for SARS should be equally applicable for Covid-19. Differences between the recommendations above and those for SARS (<http://www.itmonline.org/arts/sars.htm>) may simply reflect the natural development of TCM in the modern era over the 17 years since that time. The new recommendations are not necessarily more effective, but reflect the input of different herbal specialists.

The second approach is illustrated by the following table that presents herbs that are deemed established antipathogenic agents by laboratory studies. The table below, which is taken from the article “Utilizing Traditional Chinese Herbal Medicine to Treat Infections,” is posted at: <https://www.itmonline-updates.org/uploads/1/0/0/8/100827748/infections.pdf>

Pinyin	Common Name	Scientific Name	Part	TCM Herb Category
Bai Hua She She Cao	Oldenlandia	<i>Oldenlandia diffusa</i>	top	clear heat
Bai Jiang Cao	Patrinia or Thlaspi	<i>Patrinia villosa</i>	whole	clear heat
Ban Lan Gen	Isatis Root	<i>Baphicacanthus cusia</i>	root	clear heat
Chuan Xin Lian	Andrographis	<i>Andrographis paniculata</i>	rhizome	clear heat

Pinyin	Common Name	Scientific Name	Part	TCM Herb Category
Da Qing Ye	Isatis Leaf	<i>Isatis tinctoria</i>	leaf	clear heat
Hu Zhang	Hu-chang	<i>Polygonum cuspidatum</i>	rhizome	clear heat
Huang Bai	Phellodendron	<i>Phellodendron amurense</i>	bark	clear heat
Huang Lian	Coptis	<i>Coptis chinensis</i>	rhizome	clear heat, dry damp
Huang Qin	Scute	<i>Scutellaria baicalensis</i>	root	clear heat, dry damp
Jin Yin Hua	Lonicera	<i>Lonicera japonica</i>	flower	clear heat
Ku Shen	Sophora	<i>Sophora angustifolia</i>	root	clear heat, dry damp
Lian Qiao	Forsythia	<i>Forsythia suspensa</i>	fruit	clear heat
Pu Gong Ying	Taraxacum	<i>Taraxacum mongolicus</i>	whole	clear heat
Qing Hao	Ching-hao	<i>Artemisia apiaceae or annua</i>	top	clear heat
Xia Ku Cao	Prunella	<i>Prunella vulgaris</i>	top	clear heat
Yu Xing Cao	Houttuynia	<i>Houttuynia cordata</i>	fruit	clear heat, dry damp
Zi Hua Di Ding	Viola	<i>Viola yedoensis</i>	whole	clear heat

Only very few of these herbs appeared in the formulas listed above, mainly Jin Yin Hua and Huang Lian, also Lian Qiao, Yu Xing Cao, and Huang Qin. This list is hardly comprehensive, but illustrates some herbs considered to have broad spectrum of action.

ITM formulations

ITM formulas are not intended for wide scale usage. They are produced in small amounts, intended for direct prescription by practitioners to their patients, mainly practitioners who have studied ITM literature, and they are accompanied by no consumer level information. Rather, they are intended to aid practitioners in the study of herbs and formulation strategies. Patients seeking herbs for prevention purposes should be encouraged when possible to use commercially available products that might be in large supply from numerous outlets. The formulas relayed by Chen and Hsu, minus unavailable items, which might be substituted, can be made from single herb extracts as well as from crude herbs made into decoction as done in China.

Nonetheless, for full disclosure, ITM formulations with anti-pathogenic herbs such as those listed in the table above include: Bidens 6, Isatis 6, Paris 7, and Patrinia 7 (these are Seven Forests formulas); Baicalcumin and Myrolea-B (these are White Tiger formulas); and Yin Qiao Jie Du Pian (Pine Mountain). Other formulas may be suited to treating pneumonia symptoms without having significant amounts of the anti-infection herbs listed above, such as Belamcanda 15 (Seven Forests) and Qing Qi Hua Tan Pian (Pine Mountain). Immune enhancing formulas that are used for weakened patients include Astragalus 10+ and Viola 12.

Formula for Immune Enhancement in Prevention Strategies.

Background Note: I have received numerous requests for ideas about prevention strategies for Covid-19 using Chinese herbs. Years earlier, I had met similar kinds of requests for HIV, hepatitis B/C, swine flu, and other viral epidemics, with some suggested formulations. There is a difference here, in that rather than treating an existing infection, the question is how one might improve chances of not acquiring the infection even after taking hygienic precautions? One strategy that patients and practitioners in the west have reported using for preventing colds and flus has been to regularly ingest a low dose of a formula that treats that condition, such as Yin Qiao San or Yin Qiao Jie Du Pian, that would otherwise be used once the disease was present. There is a heightened sense of worry and need to act despite being in a low risk situation. With annual influenza season, one has personal knowledge of what was experienced before, and pursue one of several options, such

as to choose getting the vaccine, or choose to wait for an infection prior to starting treatment, or choose a preventive method with vitamins, herbs, or other supplements, that has worked in prior years. In this case, those options are limited by the lack of experience. It is reasonable to use supplements that have helped with common cold/ influenza, but supplies of may not meet current demand. This is the case with ITM formulations, which are barely available in amounts for the usual cold/flu season.

Herb Formula: Unproven but Logical

My recommendation for using herbs as a preventive for respiratory viral infections, including Covid-19, is based on the astragalus-atractylodes pair (Chinese: Huang Qi, Bai Zhu) that has been relied upon for centuries in the practice of Chinese herbal medicine. At the time of the development of the formulas, viruses were unknown and the immune system was also unknown, but the weakness that leads to easy susceptibility to pathogenic influences was recognized. The conceptual framework is that astragalus controls the “surface” to protect against invasion of pathogen and atractylodes strengthens the interior, specifically the spleen, to bolster the defenses. Physicians of ancient times sometimes depicted this approach in military terms, with an outer guard to seek out incoming invaders and reserves held behind for replacement and supply, potentially a major reinforcement. While astragalus and atractylodes are both deemed tonics for the spleen qi, the key role of astragalus is its influence on superficial defenses; the role of atractylodes is to unencumber the spleen that may suffer from stifling dampness, as often occurs in the modern setting (high level of food/beverage intake, low level of physical labor). This dampness does not necessarily cause symptoms of fluid accumulation and discharge, but, rather a hesitancy in the spleen’s functional responsiveness.

There are numerous existing TCM formulations that can be chosen which include this herbal pair, and I recommend three selected from among those, based on their applications in modern practice of TCM and Kampo (the Japanese version of the traditional Chinese medical system). These can be used for preventive strategies in their original form or modified by the practitioner: **Bu Zhong Yi Qi Tang, Shi Quan Da Bu Tang, Yu Ping Feng San**. These are well established as formulations effective for conditions corresponding to weak immune functions.

My recommendation for the current concerns about Covid-19, but also during the influenza season, is to utilize these in the form of decoctions (the two “Tang” formulas are normally produced that way; Yu Ping Feng San is traditionally first ground to powder and then boiled for a short time, this is the meaning of San). However, the decoction method of herb administration is impractical for most people in the west, so given the circumstances, I recommend to replace those with dried decoctions (“granules” or “powders” as they are often depicted). The reason for recommending this form (the decoction, fresh or dried) is that one wishes a rapid effect, a strong effect, and the duration of therapy is hopefully not prolonged (this will depend on the course of the epidemic and the development of a vaccine), so reliance of convenient but lower dose pills, capsules, and tablets can be deferred for other uses, such as recuperation after becoming ill. The taste of this mixture is not unpleasant for most users.

Here is the formula that I have designed for this prevention method:

Astragalus-Houttuynia Combination (Qi Huan Bao Hu Zhe Tang)

Huang Qi; Astragalus: 30

Bai Zhu; Atractylodes: 20

He Huan Pi; Albizzia: 20

Yu Xing Cao; Houttuynia: 20

Gan Cao; Licorice: 6

Chen Pi; Citrus: 4

Because Yu Ping Feng San is such a small formula with the two key ingredients, this new formula can be viewed as a modification of that traditional prescription. The deleted herb, siler, aka ledebouriella, Fang Feng, is not essential for this application. The basis for the original inclusion of the herb in the traditional formula is to counterbalance the action of astragalus. Astragalus is viewed as an aid to closing the pores that serve as entry points for evil, while siler is utilized to open pores, to let out the pathogenic influence. When the person has not yet developed the disease, siler is not necessary. As Qing Bowei commented: “if there are no superficial pathogens at all, administration of siler will actually provide an opportunity for pathogens to attack the body.” After illness develops, the situation will be different. While Qing’s explanation is somewhat exaggerated, it reflects the concept that the pore opening activity gives the pathogen an entry point.

Albizzia is traditionally administered for anxiety, and this formula is especially suited to the “worried well” who are not sick, but are quite worried about potential exposure to the disease and development of an infection. In modern studies, albizzia is known as an immune enhancing herb with increasing investigation for use to potentiate vaccine-induced immune response against a virus. This is the initial response to invasion of a pathogen.

Houttuynia is an herb traditionally used for lung infections. It has been researched recently for effects on influenza (including the swine flu, H1N1 variant), Zika virus, Norovirus, Herpes virus, and others. The reason for inclusion here, in a formula for those without the virus, is that it may help *prevent* viral entry into cells, in case an exposure occurs but has not yet taken hold.

Licorice, often used in formulas to harmonize diverse ingredients, also serves here to boost the qi along with atractylodes and astragalus, and to enhance the virus inhibiting effect of houttuynia. Citrus is added to address concerns about qi tonification that may be administered when there is some central stagnation.

An essential aspect of using this formula for a protective action is to get an adequate dosage of all the herbs. The figures given, which serve as percent units, are also approximately correct for grams per day. For most granule lines, these amounts will then translate to about an 18 grams per day quantity, and I would suggest a minimum of 6 grams per day. In the range of 6-18 grams per day, I would recommend the higher doses when there is deemed a higher risk of infection due to possible exposure, a higher body weight, and/or a more debilitated immune system (weakness as a result of prior illness, injury, or with age). It is understood that some people will prefer the minimum dose out of concerns for cost, unfamiliarity with taking Chinese herbs, and prior experience of being “very sensitive” to herbs.

Formula for Non-hospitalized Symptomatic Patients

The estimate that 80% of those infected with Covid-19 do not require hospitalization, in fact, may have no symptoms, indicates that hospital resources can be reserved for the 20% having severe symptoms. For those with symptoms such as fever, congestion, and some shortness of breath, treatment with Chinese herbs may be helpful. The formulas described by Chen and Hsu (they have since relayed additional examples) can be chosen. I have designed a formula for the disease condition where it has not progressed to pneumonia (shortness of breath can indicate a mild pneumonia, often called “walking pneumonia” in the non-Covid cases, and such mild cases can resolve within a few days or weeks).

The main principle of therapy for this treatment phase is aptly described as “to ventilate the lungs.” One of the favored herbs for this purpose is Ma Huang. This herb has been taken out of use by abuse of it in non-TCM applications. However, there are other approaches to this strategy that I think are more suitable. Specifically, I am recommending the herbal pair Chai Hu (bupleurum) and Jie Geng (platycodon). This pair is found in certain traditional prescriptions such as Chai Ge Jie Ji Wan, which is used for a disease constrained

in the muscle layer, and in Xiao Chai Hu Tang to which Jie Geng is added to treat acute bronchitis. This pair is in Zhu Run Wen Dan Tang, for feverish disease with discomfort in the chest.

Bupleurum-Platycodon Combination (Chai Jie Shi Fei Tong Qi Tang)

Chai Hu, Bupleurum: 20

Jie Geng, Platycodon: 20

Gua Lou, Trichosanthes fruit: 20

Huang Qin, Scute: 20

Bo He, Mentha: 10

Sheng Jiang, Fresh Ginger: 6

Gan Cao: 4

Dosing information is the same as for Astragalus-Houttuynia Combination except that it is recommended that the higher dosage range be used, which would be 12-18 grams.

Treating patients at the clinic

It is advised here that patients with suspected or known coronavirus infection (Covid-19) not be brought into the typical acupuncture or natural health care center due to potential for the virus to infect the practitioner(s), staff, and other patients, especially patients having significant disorders that could make the viral infection especially harmful. The situation may change if there is widespread occurrence of the virus, such as is the case with influenza (still, cautions should be in place for patients with known influenza), but while Covid-19 remains at a low level of infection, it is better to have the patients go to a standard medical facility which has capabilities for managing transmission of infections. Patients with coronavirus should be encouraged to self-quarantine if it is not necessary to seek professional medical attention.

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