

Case analysis: The effect of traditional Chinese medicine in treating a long COVID patient and the usage of meridian Qi measurement device in assisting diagnosis

Qiang Wei* (Jingwei Healing Technology Limited), Karen Fritzemeier

Abstract: In recent years, long COVID has attracted the attention of many researchers. Among many kinds of symptoms, brain fog and fatigue are more challenging. Most scholars believe that there is currently no effective treatment. At the same time, although traditional Chinese Medicine (TCM) may be effective in treating fatigue, the prescription requires ephedra and is therefore not possible in most Western countries, necessitating the search for possible alternatives. The author took part in the treatment of a long COVID patient since 2022. During the treatment, oxygen therapy was used even if the blood oxygen level was normal. The results show that oxygen therapy has a certain effect on waking up during the night/night sweating. This article also describes the therapeutic effects of Chinese herbal medicine, and cupping on alleviating symptoms such as eyelid weakness, cold legs, cold hands, feeling cold for a while then hot for a while, and easy waking up. At the end of the therapy, the fatigue of the patient was also relieved to some extent. In addition, the author used a newly invented meridian measuring device to assist in the selection of prescriptions. The results show that this approach can improve the treatment effect and increase the effectiveness of prescription.

I. Treatment record

The patient is a 53-year-old male, weighs about 170 pounds, 5'11", and has no allergies. He got COVID-19 in Oct 2020. His symptoms in June 2022 include:

- Fatigue, can only walk short distances.
- Brain fog.
- Pressure on his head all the time.
- Gets short of breath very easily.
- Doesn't tolerate a lot of noise. Likes quiet.
- Squints on one side to be able to focus. If he opens both eyes, he feels like he is very dazed and cannot focus.
- Has eye muscle problems (cannot raise his eyelid) and cannot read a book or drive (above symptoms have appeared since he first caught COVID-19 in 2020).
- Sometimes feels like his lower legs get cold, on and off for quite a while (appeared since March or April 2022).

1. The past experience before lasting positive outcome was ever got

Numerous efforts were made before 2022 to restore the patient's health, including physical therapy(PT), stellate ganglion block, ivermectin, etc., but no improvement was seen.

The patient underwent hyperbaric oxygen therapy (HBO) for 40 sessions in 2022. When he was in the hyperbaric chamber, he didn't have as much pressure feeling in his head. But as soon as the treatment was done, it came back. Besides, after several weeks of treatment, when he was in the tank, his brain fog would go away temporarily. But as soon as the pressure lowered in the tank, it came back.

During the HBO treatment, the patient practiced Guasha on his right chest/abdomen on Aug 7. And his eyes were more open on Aug 10. But it's not certain whether this was due to Guasha or HBO.

¹ Corresponding author e-mail: wei_tsiang@163.com

The patient also took some Chinese medicine during 2022, including Xiao Chaihu Tang, Wu Ling San, and Guizhi Fuling Wan. These medicines brought no obvious effect. Later, he took “Zhen Wu Tang” for three days, and that made him feel hot for a while then cold for a while. This phenomenon was later cured by Chai Ling Tang, which includes Xiao Chaihu Tang. But overall, no symptoms showed obvious improvement.

In April 2023, the doctors found out that he has very low cortisol and ACTH, so they put him on hydrocortisone. However, he has had no improvement in brain fog or fatigue.

On Sep 26, 2023, a report showed he had mild basilar subsegmental atelectasis, correlating with postinflammatory/infectious changes. But his oxygen saturation (SpO₂) is in the normal range.

The patient started acupuncture in Aug 2023. He also took some other medicine including Fufang Wuweizi Wan. Later, he experienced sweating during the night and woke up feeling very drained. So, he stopped acupuncture in Sep 2023.

2. The effect of oxygen therapy, cupping and different herbs

From Oct 2023, the corresponding author contacted the patient and the traditional Chinese medicine treatment was resumed. Since many treatments were carried out in sequence, the following records will be chronological, with feedback in italic fonts (the feedback were reported by his wife).

The patient started oxygen therapy from Sep 29 with oxygen flow less than 2L/min. He took oxygen therapy one hour each time, three times a day (between 7 am - 9 am, 9 am - 11 am, and 5 pm - 7 pm). The aim is to relieve night sweating and waking up at 3:30 am.

He (the patient) was sweating less this week. He slept a whole night from midnight to 9 am without waking up, which is very unusual for him (reported on Oct 7).

On Oct 24, the oxygen flow was further increased to 4L/min (another oxygen concentrator arrived). The patient also started using a mask to increase the fraction of inspired oxygen. This practice was continued until Feb 2024.

On Oct 30, the patient's wife described his sweating pattern in more detail: “When he first goes to bed around 11:30 pm, he feels cold, then wakes up. At that point, he feels fine. At 3:30am he wakes up and feels okay/normal. He just wakes up to use the bathroom. Then he goes back to bed. He wakes up early morning (around 6 am or 7 am) and that is when the sweat comes. He gets out of bed and cools down and then goes back to bed for a little longer.” So the author suggested he do cupping on the Foot Yangming Meridians. The aim is to relieve morning sweating and early waking up.

The patient consulted another TCM doctor (Dr. Wang) remotely on Nov 7 (to get better outcomes). The main symptoms given to the doctor were as follows: "Bitterness in mouth, severe fatigue, brain fog, waking up at 3:30 am but no sweat, waking up around 7 am with hot sweating, shallow breathing (atelectasis), insomnia, shortness of breath, sleepy all the time, eye muscle dysfunction, feels his shins/feet cold." Other information that was filled in a questionnaire included: “Afraid of hot, feel cold for a while then hot for a while, hands and feet cold, sweat mainly on chest during the night, abdominal distension, dry eye, relieve the bowels every 2 or 3 days, black stool, feel thirsty from time to time, grip feeling around the head.”

The author also found out during the consultation process that the patient drank about 64 ounces of cold water daily, and told him to stop doing so, and only drink when thirsty.



Fig. 1. The picture of the patient's tongue (upper and lower sides)

Rx (by Dr. Wang): Chaihu 15, Huangqin 9, Jiang Banxia 9, Bei Shashen 5.5, Shengjiang 15, Dazao 20, Zhi Gancan 4, Guizhi 4, Muli 30, Longgu 30, Fushen 15, Taoren 12, Mudanpi 9, Chishao 12, Hehuanpi 30, Hua Juhong 9.

The cupping on the Foot Yangming meridian was carried out on Nov 13.

No sweat in the morning before waking up. But sometimes during the day, he feels like a hot flash and he quickly takes off his sweater before he starts sweating (reported on Nov15).

Rx: Xiao Chaihu Tang, 5 grams each time, 3 times per day. The aim is to relieve hot flashes.

He has not had any sweating episodes for the past week. But none of his other symptoms have changed. Very fatigued. And he woke up anywhere between 1:30 and 3:30 am. Some nights he woke up twice. Just lately it has been more variable, not a consistent time. And he still feels his shin cold sometimes (reported on Nov 22). He has been sleeping through the whole night sometimes. And no sweating. (reported on Dec 12)

The medicine prescribed by Dr. Wang arrived on Dec 12, and the patient started taking them twice a day.

The patient consulted Dr. Wang again remotely on Dec 28. The main symptoms given to the doctor are as follows: "After taking the medicine, the insomnia, dizziness, and cold in calves and feet have improved. Usually wakes up at 5 am and then goes back to sleep after 30 minutes. But there is no obvious change in extreme fatigue and brain fog (but PT like mild stretches and lifting light weights are practiced recently and it may interfere with effect assessment). Currently, still has shallow breathing (mild atelectasis), shortness of breath, always feels sleepy during the day. Eye still squeezes sometimes but not as often. There were a couple of times last week, but mostly both eyes are open. Feels thirsty from time to time." Other information that was filled in a questionnaire includes: "Feel cold for a while then hot for a while, sweat when remain calm, abdominal distension, head heavy, dry eye, sticky phlegm, relieve the bowels every 2 or 3 days, black stool, easily agitated, forget easily, premature ejaculation."



Fig. 2. The picture of the patient's tongue (upper and lower sides)

Rx (by Dr. Wang): Danggui 9, Baishao 12, Chaihu 12, Mudanpi 9, Jiao Zhizi 6, Gancao 6, Yujin 15, Bohe 6, Hehuanpi 30, Fushen 15, Yan Cheqianzi 15, Niuxi 15, Duzhong 15, Jiang Banxia 9, Yiyiren 30, Baizhu 15.

Note it took a long time for the medicine to arrive, so the author prescribed some other medicine to accelerate recovery.

Rx: "Xuefu Zhuyu Wan" 1 gram each time, 5 times per day. "Xiao Chaihu Tang" 3 grams each time, 3 times per day. Do cupping on the Hand Yangming meridian. The aim is to relieve blood stasis.

*He has sweated the past two nights (reported on Jan 13). During some interval nights, he slept all night until morning without waking up (reported on Jan 16). He noticed about lunchtime he sweated quite a bit in his pelvic area, and **he noticed that he urinated several times more than usual** (reported on Jan 22). He is having a few episodes of sweating here and there but still has the grip feeling. This past time it was armpits and chest (reported on Jan 27). His hands felt very warm to me, warmer than usual. He usually has kind of cold hands (reported on Jan 28).*

Started Dr. Wang's medicine twice a day (after lunch and dinner) from Jan 28. And took "Xuefu Zhuyu Tang" 2 grams each time, three times a day (after breakfast, 10 am, 3 pm).

He woke up sweating this morning. Mostly chest, armpits, and back, a little bit in the pelvic area too. He has been sleeping through the night two times this week. He actually had a few days of good sleep fairly close together, which is very unusual for him. No change in fatigue or brain fog (reported on Feb 2).

The patient did cupping on his back as recommended by the corresponding author on Feb 2. The aim is to relieve blood stasis in the Foot Taiyang meridian.

Last night he slept all night and did not sweat. The night before he woke up several times and sweated a lot. He may be more active and is seen doing more than he has in a long

time. But he says he is just better at pacing. He still has the head grip feeling (reported on Feb 8).

3. Pause of TCM treatment

The patient started visiting a neurologist and began using Amitriptyline to treat the vice grip feeling on his head, so the oxygen therapy and herbs were paused. At the time when this article is written (April 2024), he has tried Amitriptyline for two months but has seen no improvement. The patient got COVID-19 again in February 2024 and used Paxlovid to treat the situation. He recovered soon, but his brain fog and fatigue showed no improvement.

II. Discussion

A few issues need to be brought out before further discussion:

1. Because traditional Chinese medicine takes effect slowly, and the patient has relatively high expectations, he has always reported that herbs were ineffective in treating fatigue (even though he admitted the effect in treating other symptoms). However, his wife actually observed subtle changes on several occasions. In addition, changes can also be seen on longer time scales. Until 2022, the patient could only walk short distances, often needed to use a wheelchair, and could not take physical therapy or drive. In the later stage of TCM treatment, he was able to drive short distances and perform simple weight-bearing and stretching exercises. In other words, the effect of the aforementioned treatment in relieving fatigue should not be completely denied.

2. In the aforementioned records, the phenomenon of sweating appeared repeatedly. However, it should be recognized that sweating in the absence of medication is a symptom that needs treatment. The sweating that occurs after taking medicine may be a signal that the Qi meets/overcomes obstacles, so it may be a good phenomenon.

3. In the previous description, the patient sometimes mentioned that he needed to wake up several times to urinate at night, and sometimes said that he did not wake up all night. It should be noted that the reason he needs to urinate at night may be the medicine is taking effect, and the patient is expelling dampness through urination. Therefore, we should not simply think that needing to get up at night is a step back, while being able to sleep until dawn is progress.

On the premise of agreeing with the above judgments, several relevant factors can further be analyzed in detail:

1. Oxygen therapy may promote the movement of Qi

Before the treatment started in 2023, the patient mentioned on Facebook that he always woke up at 3:30 in the morning. According to the midnight-midday tide flow (Ziwu Liuzhu), the lung meridian is the active meridian from 3 am to 5 am, so it was speculated that the patient's lung had not been completely cured. At 3:30, the flow of Ying-nutrient Qi may be interrupted or blocked, causing the patient to wake up. Later, after the patient underwent acupuncture, he experienced sweating at night. The reason may be that the acupuncture temporarily depleted Qi and blood, and then the lung problems caused the Ying-nutrient Qi and Wei-defensive Qi to be unable to be distributed throughout the body, which in turn led to night sweats. Since it was impossible to treat the lung problems with any formula containing ephedra, oxygen therapy may be the only choice left. Table 1 shows the reason why the hours used during the oxygen therapy timetable were selected according to the midnight-midday tide flow. Note the last row has never been used since it's too messy.

It can be seen from the table that, in order to avoid possible harm, the oxygen therapy was limited to three hours. Practice has shown that a week of oxygen therapy at 2 L/min volume relieved the wake-up at 3:30 and significantly improved post-acupuncture night sweating.

Table 1. Timetable of oxygen therapy

time	reason
7am-9am	Need the nutrients absorbed by stomach
9am-11am	Need the nutrients absorbed by spleen (not the spleen in modern medicine)
5pm-7pm	Need the nutrients generated by kidney so that shallow breath may get improvement
3am-5am	Need the nutrients generated by lung

Modern medicine generally believes that the lungs are only responsible for the exchange of oxygen and carbon dioxide, and the results of the exchange can be measured with oxygen and carbon dioxide partial pressures. Therefore, oxygen therapy is rarely recommended when the patient's blood oxygen level is normal and there is no disease such as COPD. Although studies in recent years have shown that there may be damage to the lungs in long COVID patients and the damage cannot be detected by ordinary CT scans^[1], there is no consensus on oxygen therapy. However, the practice of this article shows that the lungs may also play a role in promoting the movement of Ying-nutrient Qi in the meridians. By applying oxygen therapy at the appropriate hour, the lungs and other internal organs may get more nutrients, thereby accelerating the patient's recovery.

2. Xuefu Zhuyu Tang may be more effective for some patients

Many studies have shown that the COVID-19 virus can cause microclots in a human body^[2]. In view of Traditional Chinese Medicine (TCM), in patients with long COVID who have not received timely treatment for a long time, removing blood stasis should also be an important part of the treatment. For the patient in this article, the color of the blood vessels under the tongue, and the disappearance of sweating in the morning after cupping, were all clear signs of blood stasis. The question was which formula shall be used. At the beginning of treatment, Dr. Wang chose Guizhi Fuling Wan. But after taking the medicine for two weeks, the shape of the blood vessels under the tongue did not change much. At this time, doctors were faced with questions: should the patient continue taking it for more time? Or should another formula be used instead?

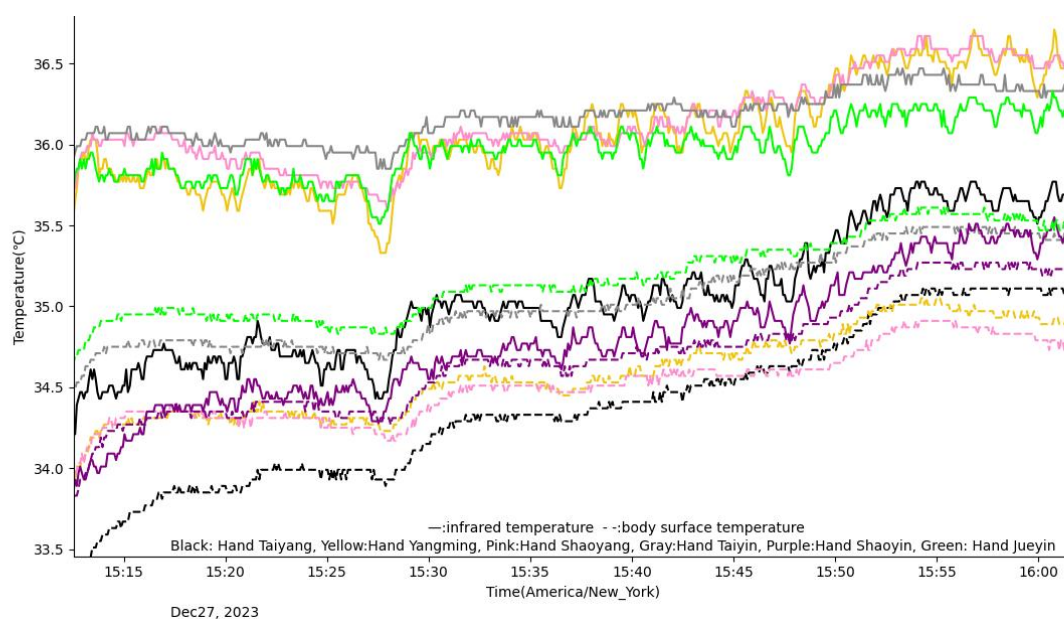


Fig. 3. The waveform that shows Shaoyang Meridian damage but no spikes

Since past experience has shown that when blood stasis-removing drugs (such as Guizhi Fuling Wan) are effective, spikes can be seen in the meridian measurement waveforms [3], the author took measurements to answer the aforementioned questions (the result interpretation principle of the waveform can also be found in [3]). Figure 3 shows the waveform measured after taking Dr. Wang's medicine (which included Guizhi Fuling Wan). It could be seen from the picture that after taking the medicine, there were no spikes in any curve, so it was better to change the medicine. Careful observation also revealed that in the waveform of Fig. 3, the difference between the infrared temperature of the Hand Shaoyin meridian (solid purple curve) and the corresponding body surface temperature (dotted purple curve) was very small, while the difference between the infrared temperature and the body surface temperature corresponding to the Hand Taiyang Meridian (black curves) was larger. According to the experience in [3], this was a symptom of stagnation of Yin-nutrient Qi in Hand Shaoyin Meridian, and Si Ni San should be used. Considering that Xuefu Zhuyu Tang contains Si Ni San, it was thus possible to treat blood stasis and Shaoyin Qi stagnation at the same time. For this reason, the author recommended that the patient take Xuefu Zhuyu Tang first while waiting for Dr. Wang's medicine. When measured again after taking the medicine (Fig. 4), spikes appeared in the waveform. It can be seen that in this patient, Xuefu Zhuyu Tang has a better effect in eliminating blood stasis. Moreover, by taking Xuefu Zhuyu Tang, the patient sweated at night many times, and the sweating area gradually expanded (from the groin to the armpits, and then to the chest and back). Not only that, in the later stage of treatment, the patient's hands became warm. These all showed that Qi can gradually pass through the Foot Yangming(Stomach) Meridian, Foot Taiyin(Spleen) Meridian, Hand Shaoyin(Heart) Meridian, and Hand and Foot Taiyang Meridian, and the direction of treatment was correct.

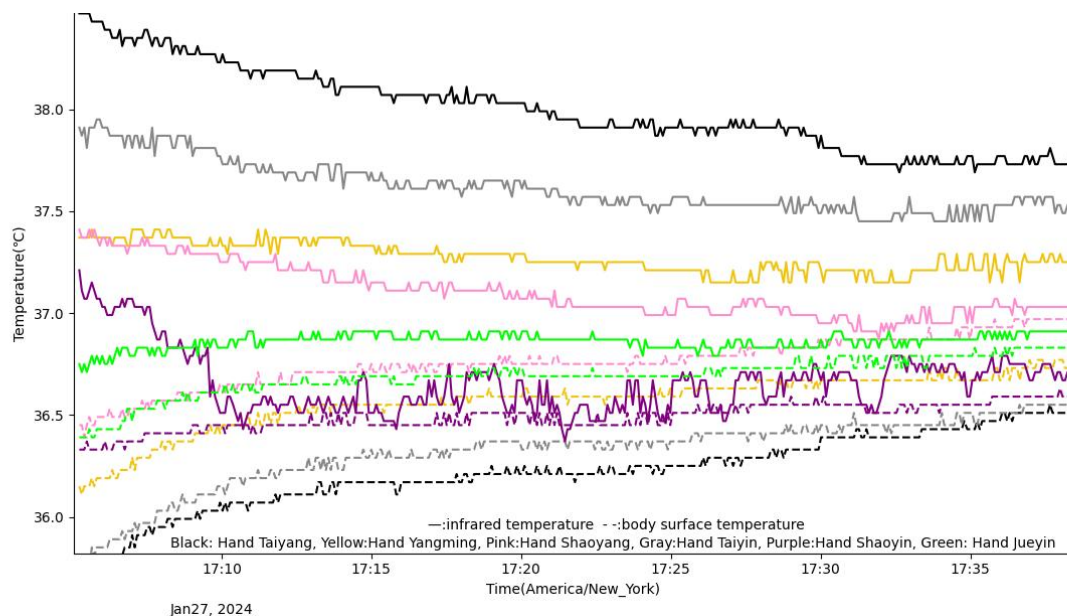


Fig. 4. The waveform that shows spikes in purple solid curve

3. Some issue on Xiao Chaihu Tang

The patient in this article took Xiao Chaihu Tang in 2022 and 2023 respectively. When he took it in 2022, not only did the medicine have little effect, but he sometimes felt more fatigued. However, after combining oxygen therapy and Xuefu Zhuyu Tang in 2023, the phenomenon of aggravated fatigue basically no longer occurred. The reason should be that in 2022, Xiao Chaihu Tang allowed Qi to circulate, but after the Qi was consumed, it could not be replenished in time, resulting in worsened fatigue. The author himself has had a similar experience in the past (after Xiao Chaihu Tang was used to clear obstacles in the Shaoyang meridian and Qi began to flow, the palpitations worsened). It can be seen that in patients with complex pathogenesis, Xiao Chaihu Tang

may cause temporary worsening of the condition, but this should not lead to the conclusion that taking Xiao Chaihu Tang is wrong.

Another interesting phenomenon was the hot flash (feeling hot for a while then cold for a while). The patient in this article did not suffer from hot flashes before starting TCM treatment, but during the treatment in 2022 and 2023, he had hot flashes many times, which quickly disappeared after taking more Xiao Chaihu Tang. The author believes that the reason why there were no hot flashes in the beginning was that the Qi was very weak at that time (since Qi was very weak, and the lung could not push it to circulate, there was naturally no hot or cold caused by the intermittent flow of Qi). Subsequently, when the Qi became stronger, but there was still a problem in the Shaoyang meridian, hot flashes appeared until the problem in the Shaoyang meridian was partially cleared by Xiao Chaihu Tang. This process of appearing and disappearing actually reflects the complex changes of Qi and meridians in the patient's body.

In addition, it should be noted that during the second remote diagnosis, Dr. Wang thought that there was no sign of the typical characteristic of Xiao Chaihu Tang syndrome (or the previous application of Xiao Chaihu Tang was not effective), so he no longer used Xiao Chaihu Tang. However, the measurement results at this time (Fig. 3) showed that the patient still had synchronous high-frequency infrared temperature fluctuations in multiple meridians. According to the author's experience, this is a clear indication for the use of Xiao Chaihu Tang^[3]. Therefore, it was recommended that the patient continue to take it. After taking it for three more weeks, the newly obtained measurement results showed that the fluctuation disappeared. It can be seen from these facts that measurements can help doctors to select medicine and ensure that potential problems are treated effectively and thoroughly.

4. *Why does the course of treatment take so long?*

The patient in this article had a lengthy treatment process mainly because he did not receive timely treatment after contracting COVID-19. If one could receive timely treatment after developing long COVID, the subsequent treatment process would not take so long (the author once experienced extreme fatigue after contracting COVID-19 and used Maxing Shigan Tang and Xiao Chaihu Tang to treat it, and the fatigue disappeared within a week, more details can be found at <https://www.facebook.com/wei.wood.568/posts/pfbid02d8DJcXs7Y33622KSGMD3DGip8AMD1uGfMrEgiNEJg572Y9UoS7adFFu553UVaQHEI>). But for the patient in this article, due to the prolonged course of the disease, there are at least four factors that may contribute to extreme fatigue: lung problems (atelectasis may be a symptom of worsening conditions; in fact, the lungs were damaged since the moment he contracted COVID-19, but ordinary CT scans could not detect it at that time), problems with the Shaoyang meridian, blood stasis, and dampness.

Consequently, doctors need to identify and address all relevant factors simultaneously to achieve satisfactory results. In addition, for the aforementioned factors, the latter three may be resolved by herbal medicine. However, for lung problems, since it is not possible to use ephedra, oxygen therapy has to be used instead. This means that some functions of the lungs can only be carried out for several hours each day. For example, regulating waterways (通调水道) is one of the important functions of the lungs. If the lungs only work for a few hours a day, it will be very difficult to remove dampness from the patient's body. It can be seen from these factors that finding a substitute for ephedra prescriptions is still a very urgent issue at present.

III. Call for reviews & feedback

The author sincerely invites Chinese medicine doctors to write reviews/feedback (positive or negative) on <https://www.cmcure.org/articles/>. Free meridian measuring devices may also be got in the website.

References

- [1] Grist JT, Collier GJ, Walters H, Kim M, Chen M, Abu Eid G, Laws A, Matthews V, Jacob K, Cross S, Eves A, Durrant M, McIntyre A, Thompson R, Schulte RF, Raman B, Robbins PA, Wild JM, Fraser E, Gleeson F. Lung Abnormalities Detected with Hyperpolarized ^{129}Xe MRI in Patients with Long COVID. *Radiology*. 2022 Dec;305(3):709-717. doi: 10.1148/radiol.220069. Epub 2022 May 24. Erratum in: *Radiology*. 2023 Oct;309(1):e239025. PMID: 35608443; PMCID: PMC9134268.
- [2] Kell DB, Laubscher GJ, Pretorius E. A central role for amyloid fibrin microclots in long COVID/PASC: origins and therapeutic implications. *Biochem J*. 2022 Feb 17;479(4):537-559. doi: 10.1042/BCJ20220016. PMID: 35195253; PMCID: PMC8883497.
- [3] Wei Qiang. Research on Characteristics of Meridian Infrared Temperature Curve of Several TCM Disease Types. <https://github.com/woodwei/papers/blob/master/Research%20on%20Characteristics%20of%20Meridian%20Infrared%20Temperature%20Curve%20of%20Several%20TCM%20Disease%20Types.md>