



## Discussion

# The role of Korean Medicine in the post-COVID-19 era: an online panel discussion part 1 – Clinical research



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## ARTICLE INFO

## Article history:

Received 27 June 2020

Received in revised form 11 July 2020

Accepted 11 July 2020

Available online 17 July 2020

## ABSTRACT

**Background:** As it is predicted that large-scale viral diseases will occur more frequently in the future, there are voices that Korean Medicine (KM) community need to discuss the role of KM and what to prepare to play a significant part of national disease control system in the post-Coronavirus Disease 2019 (COVID-19) era.

**Methods:** This paper summarizes the edited highlights of an online video meeting by Google meet on 23 April 2020, organized by the Korean Medicine Convergence Research Information Center. Six speakers who are experts in respiratory medicine, cardiology and neurology, gastroenterology, and neuropsychiatry presented what KM community should prepare for the future acute infectious disease outbreaks by learning from experiences of KM teleconsultation center for COVID-19.

**Results:** Unlike in the past infectious disease outbreaks, KM community has played a bigger part in COVID-19 pandemic in spite of regulatory challenges via activities of KM teleconsultation centers. Telemedicine in pandemic could be more actively utilized in light of the present KM teleconsultation center's achievements. Data from KM teleconsultation centers would be useful to establish an evidence-base for effectiveness and safety of KM treatments if they are properly collected and analyzed. It might be beneficial to adopt an integrative medicine approach in response to acute viral infectious diseases in the future but the inclusion of KM in the national disease control system is required.

**Conclusion:** The present online discussion suggested possible directions of clinical research in KM for the post-COVID-19 era.

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## 1. Introduction

As of March 1, 2020, Korea had the world's 2nd largest number of Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) infected cases after China.<sup>1</sup> With the dedication of the medical staff, the government's proactive and quick response, and the active participation of social distancing by citizens, the number of new cases is falling from around mid-April.<sup>2</sup> However, going through the

Coronavirus Disease 2019 (COVID-19) pandemic, Korean Medicine (KM) community was completely excluded from any stage of responses to COVID-19 including diagnosis, treatment, quarantine, or prevention due to various reasons including political and regulatory barriers and lack of social awareness. Because Korean Medicine Doctors (KMDs) had no way to participate or volunteer in any activities in the national disease control system, the Association of Korean Medicine, of its own accord, opened a KM teleconsultation center for COVID-19, which is run by KMD volunteers and donation.

As it is predicted that large-scale viral diseases will occur more frequently in the future, there are voices that KM community need to discuss the role of KM as medicine and KMDs as healthcare professionals not to repeat the same situation. In this context, Korean

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**Table 1**  
Information of speakers in the present discussion.

Speakers (in order of appearance)	Affiliation	Clinical expertise and/or role in the discussion
Prof. Hyangsook Lee	Kyung Hee University	Organizer of the event
Dr. Heebum Chung	Medistream Corp.	Host
Dr. Younggun Kang	Association of Korean Medicine	Briefing of Korean Medicine teleconsultation center
Prof. Insoo Jang	Woosuk University	Introducing Korean telemedicine experience in COVID-19
Prof. Jun-Yong Choi	Pusan National University	Respiratory medicine
Prof. In Chul Jung	Daejeon University	Neuropsychiatry
Prof. Jae-Woo Park	Kyung Hee University	Gastroenterology
Prof. Seungwon Kwon	Kyung Hee University	Cardiology and Neurology

Medicine Convergence Research Information Center (KMCRIC), a government-funded research information center for KM, organized an online panel discussion on the theme of “role of KM and its preparation in the post-COVID-19 era”. Through this discussion, a constructive and future-oriented direction for KM community to play a significant role in viral infectious diseases is expected to emerge. Below are summarized and edited presentations by the 6 panelists who are experts in respiratory medicine, cardiology and neurology, gastroenterology, and neuropsychiatry.

## 2. Panel discussion

**Lee:** In an ongoing global pandemic of COVID-19, it appeared that Korean Medicine Doctors (KMDs) were not able to play a significant role due to various reasons including political and regulatory barriers. Apart from what is gone, we need to discuss what Korean Medicine (KM) and KMDs should prepare for another pandemics which are sure to come more frequently. The Korean Medicine Convergence Research Information Center (KMCRIC)<sup>3</sup> organized two online panel discussions to address what and how to prepare in the post-COVID-19 era in the KM community. Below is an edited summary of 1 briefing of the current status of KM teleconsultation centers for COVID-19 and 5 presentations by KM experts in respiratory medicine, cardiology and neurology, gastroenterology, and neuropsychiatry (Table 1).

### 2.1. Sharing the experiences and achievements of KM teleconsultation centers

**Chung:** What are the accomplishments, such as the role of KM treatments and field experience, of the KM teleconsultation centers in Daegu and Seoul, wherein clinical data on the use of KM for COVID-19 is being collected?

**Kang:** In Daegu, KM remote consultation over the telephone started on March 9, 2020 and ended on April 5, 2020. In Seoul, the KM teleconsultation center started on March 31, 2020 and has remained ongoing. As of 22 April 2020, 2132 patients have received KM treatments via teleconsultation center and these are approximately 19% of confirmed cases of COVID-19 in South Korea. This number is particularly crucial because it was based on the telephone calls made by the patients of their own accord, without prior planning or any support from the government. During the early stages after the Daegu center began operating, many mild cases of COVID-19 were observed, who had been diagnosed with COVID-19 and thus placed themselves in self-isolation because they could not be admitted to a hospital or quarantine facility. From the 2nd week in the Daegu center, we received calls primarily from patients entering quarantine facilities. As of 22 April 2020, at the Seoul center, we mainly have patients with mild cases of COVID-19 and typically receive calls from patients who have been released from a hospital or quarantine facility after testing negative for COVID-19. According to the results of our ongoing survey on the satisfaction of discharged patients, the KM teleconsultation center has received excellent results: a patient stated that “Western

Medicine (WM) doctors only quarantined (us) without providing any drugs or treatments, whereas KMDs called us every day and provided herbal medicines, which I truly appreciated.”

Unlike the past swine flu, SARS, and Middle-East Respiratory Syndrome (MERS) pandemics, this teleconsultation center is the first instance wherein KM has contributed toward fighting against a pandemic related to an acute infectious disease. Moreover, it has provided a significant opportunity for KMDs to understand and observe the effects of CheongPyeBaeDok decoction (QingFeiPaiDu-tang in Chinese, Seihaihidokuto in Japanese) on an infectious disease. Many KMD volunteers including students from colleges of KM, who wanted to contribute toward the prevention of an infectious disease offered to help at the center. Although the government was not initially interested in our centers, they now express interest in our achievements at the centers when they noted that more than 20% of all confirmed patients were treated through our center.

**Chung:** Can you describe your experience in the field? For example, how did the system change?

**Kang:** KM must receive support from the government and be included in the public healthcare system. KMDs should actively participate in areas related to public healthcare. Special infectious disease centers must be established to facilitate integrative treatments between WM and KM. Significant changes have been noted in many centers in Gwangju and numerous local governments also have made promises that they will also incorporate similar changes. Therefore, the KM community must preemptively suggest its participation based on the moves made by their respective local governments. We can then participate in the prevention of the pandemic with easy access to relevant data and full support from the government.

### 2.2. New possibilities of primary care for COVID-19: Telemedicine

**Jang:** In late March, during a World Health Organization seminar focusing on countermeasures against COVID-19 that are rooted in traditional medicine, I presented the role of KM in South Korea, particularly that of our KM treatment via teleconsultation. Although I attempted to contact some newspapers to introduce the role of KM in South Korea, they remained uninterested. Therefore, I instead wrote an article that was published in the South China Morning Post in Hong Kong on April 9, 2020, where I highlighted the role of KM teleconsultation in pandemic era.<sup>4</sup> The notorious SARS, swine flu, and MERS pandemics in 2003, 2009, and 2013 have led to increased public awareness of (acute) infectious diseases. However, KM was not considered during the aforementioned pandemics. Although KMDs have emphasized the use of Korean medical approaches during the swine flu and MERS epidemics, they were not able to participate in their prevention. Therefore, it is a historical event that KMDs have directly treated patients during the fierce battle against COVID-19 and that one out of 5 confirmed cases of COVID-19 opted to receive KM treatments via teleconsultation.

My presentation is primarily focused on teleconsultation and treatment. If a patient on antihypertensives is tested positive for COVID-19, he cannot visit a hospital or replenish his medication

before it runs out. Therefore, the government temporarily opened remote consultation centers, which have been avoided for a long time. We utilized this temporary opportunity to actively introduce the KM teleconsultation and the government has validated its legality. The biggest advantage of remote treatment is that the safety of both patients and doctors is assured. However, the disadvantages include difficulty in diagnosis, low accuracy of checking the vital signs, and a long consultation time. Here, I would like to discuss primary care and physicians on-site. According to the Organization for Economic Cooperation and Development (OECD) health statistics,<sup>5</sup> the primary care physicians constitutes 27% of the total number of medical doctors in South Korea and this number includes KMDs in South Korea. Approximately 80% of all patients with COVID-19 in South Korea have been mild-stage patients. How can we treat this large number of patients? This problem is not specific to South Korea. To prevent the collapse of medical systems worldwide, it might be a good idea to allow primary physicians including KMDs to play a sufficient role in managing this pandemic. Therefore, while remote treatment is an alternative, it could be beneficial to make the most of it during this acute disaster situation.

**Chung:** Many people are curious about how clinical data, including effectiveness and safety data, of KM treatment provided at the COVID-19 teleconsultation centers are being collected. Some argue that we need to accumulate decent results to participate in notable future plans. What is your take on this?

**Jang:** We have organized a team of medical staff and support groups from within the Association of Korean Medicine. There may be some limitations associated with the use of this data because it comprises information largely regarding mild cases of COVID-19; this is due to inpatients being excluded from the KM treatment. A considerable amount of data is continuously being accumulated and questionnaires are being administered. Since it is an ongoing process, conclusive comments will be available later.

### 2.3. A comparison of COVID-19 guidelines between China and Korea

**Choi:** The Chinese government has provided guidelines for the COVID-19 pandemic, and these include Traditional Chinese Medicine (TCM) treatments. The symptoms, tendencies, and conditions of COVID-19 patients have been updated and modified in each guideline edition. The 7th edition published on March 4, 2020, is the latest version available.<sup>6</sup> The treatment section highlights the CheongPyeBaeDok decoction, which has already become a best-seller, and can be administered to patients with mild, moderate, and even severe symptoms depending on the situation. Moreover, this guideline does not provide the names of prescription drugs at each severity stage and instead suggests herbal medicine prescriptions based on pattern identification, which indicates the official stance of the central government regarding traditional medicine treatment.

On the other hand, we reviewed 26 guidelines from Chinese local governments: local government guidelines were available from all 17 provinces, with 4 cities under the direct control of the central government, and 4 autonomous districts. However, despite the existence of guidelines from the central government, the local guidelines have varied significantly: for instance, we noticed a tendency in Sichuan province wherein people refrained from using Mahuang (*Ephedra sinica*) as much as possible (in general, it has been noted that people from the Southern provinces do not prefer strong medicines). Another characteristic we noticed was that these guidelines were distributed in a top-down format, without any consensus among experts. In Korea, KMDs cannot see COVID-19 patients who require hospitalization because of various reasons, including political and regulatory issues and thus, we cannot provide any KM treatments for those patients. After many twists and

turns, the Association of Korean Medicine submitted a KM guideline for COVID-19, which was comprehensively constructed by relevant societies and experts.<sup>7</sup> Moreover, I separately worked on the treatment guidelines at the Division of Respiratory Medicine in Korean Society of Oriental Internal Medicine.<sup>8</sup> In that guideline, CheongPyeBaeDok decoction without coltsfoot was suggested as the primary prescription, considering the roles of various herbs. In addition to CheongPyeBaeDok decoction, other prescriptions were recommended based on the insurance covered items via the standard process of guideline development.

In the KM teleconsultation center, the herbal prescriptions were administered over the telephone based on the treatment guideline of the Association of Korean Medicine. Based on my daily monitoring experience, it has elicited excellent effects and responses from patients and yielded high satisfaction. However, if COVID-19 is to be considered within the context of the 5- or 10-year public healthcare system in the future, we should invest the time required to develop immediate countermeasures that can be put into place once we are included in the public healthcare system.

#### 2.3.1. The preparations required for the KM community in the fight against COVID-19

**Chung:** Could you elaborate more on the preparations required for the KM community in the fight against COVID-19?

**Choi:** The most significant differences between Korea and China, in terms of respiratory infections, lie in the integration of WM and TCM or KM. China has promoted the outstanding effect of TCM against COVID-19 pneumonia. I believe TCM has been successful owing to the fact that it was administered with fluids and respirators when pneumonia patients were hospitalized. In contrast, in Korea, where collaborative treatment on acute infections is not practiced, the KM treatment was limited to mild or recovering cases over the phone, without the co-administration of WM. Therefore, for infectious diseases, wherein the role of public healthcare is of the utmost importance, it might be necessary for the KM community propose methods for effectively participating in collaborative treatments. To this end, we should be supported from the public healthcare system by the government and the conflicts among WM doctors and KMDs should also be minimized. It might be a good idea that the next 5-year R&D project to develop KM includes infectious diseases and positive results can be derived by incentivizing private or public medical institutions that decide to participate in the collaborative treatment of infectious diseases, or in conducting the relevant research. The KM community can benefit from helping government officials to understand the minimum requirements for us to contribute toward the fight against epidemics and establish a solid basis. For example, the KM Policy division in the Ministry of Health and Welfare can discuss with authorities in the Korean Center for Disease Control and Prevention and other public healthcare sectors. Therefore, we should take steps to ensure the KM community can work collaboratively with the WM community in future scenarios.

#### 2.3.2. The potential advantages and areas wherein improvement is required in KM teleconsultation

**Choi:** Consultation and provision of herbal prescriptions to confirmed cases of COVID-19 over the phone was an unprecedented move. Considerable efforts and sacrifices have been made, including those from the Association of Korean Medicine. From the KM teleconsultation center, data are being collected and reviewed by an advisory committee with dedication, and I am proud to have partaken in this valuable work. Understanding how to organize this precious data regarding KM treatment that have been collected from more than 2000 patients is another noteworthy challenge. Careful planning is generally crucial for collecting clinical data to be meaningful and informative if it is to lead to valid evidence.

With the significant time-related pressure during the COVID-19 pandemic, conducting analyses may be a challenging task. However, descriptive statistics show the current KM treatment status. Although the data are based on patients with mild cases of COVID-19, we can gain insights from reviewing statistics, such as the treated patient group, primarily observed symptoms, and the prescriptions provided. The current situation is considered a miracle in itself.

An area wherein the KM community should focus on improvement is linking our data with the utilization of the health insurance system. An infectious disease is particularly addressed by the public healthcare system. Unfortunately, the participation of KMDs in the response to the COVID-19 pandemic occurred outside the public healthcare system provided by the government. Sharing data from the public healthcare system with only the prescriptions that are not covered by insurance is a difficult task. Even a single claim is sufficient to establish an association with public health insurance data. Index data (e.g., death rate and hospitalization due to reactivation) can be viewed by the Health Insurance Review and Assessment Service or the National Health Insurance Service. This approach enables not only simple data analysis but also cohort research using big data. We cannot expect a vaccine or remedy to be developed in the near future because it generally takes long. Based on these situations, the importance of the fundamental translational research on KM examining the antiviral effects of herbal medicines can be emphasized. The establishment of a laboratory for infectious diseases can help us screen the effective individual herbs or herbal medicine preparations in the early stages of epidemics. Therefore, we can integrate the knowledge of KM and promptly develop effective treatment strategies specifically designed for Korea.

#### 2.4. KM neuropsychiatry treatment and research of COVID-19

**Chung:** People normally perceive that COVID-19 is a respiratory disease. However, many people report digestive, circulatory, and psychiatric symptoms. So today we have experts from each department to discuss these issues. First of all, an unexpectedly large number of cases were observed wherein patients experienced psychiatric symptoms. Could you tell us about KM psychiatric treatments, research approach, areas of possible integration, and what needs to be prepared or applied in the future?

**Jung:** The inclusion of KM psychiatric consultation and treatment over the phone from the early stages of the COVID-19 pandemic can be a useful strategy. As we are currently treating confirmed and/or self-isolated cases, they are of great importance for KM treatment. However, other subjects should also be considered, such as patients who were not isolated, those who completely recovered, those who were released from quarantine facilities, and those who remained unaffected around patients with COVID-19. The psychiatric symptoms that can be developed from various causes include fear, panic, anxiety, hypochondria, and depression. In addition, a patient can experience somatic symptoms, such as hypertension, insomnia, and pain. Patients have often reported such symptoms and in KM, they are categorized under palpitations, fearful throbbing or depressive symptom. According to the Korean Standard Classification of Diseases, they belong to categories of phobias, adjustment disorders, generalized anxiety disorder, and depressive disorder. During diagnosis, it is crucial to understand a patient's primary emotions, such as sadness, anger, or anxiety and it is also important to understand the severity of the symptoms. It is helpful for making a better decision by inquiring about patients' conditions to evaluate any accompanying somatic symptoms. Standardized tools to identify and quantify anxiety, depression, and somatization disorders can also be used to collect data and develop treatment approaches in an objective manner. Before determining the treatment required, professionals should refer to the KM

guidelines based on the test results. We can give herbal medicine and psychological treatments mentioned in the guidelines. Conducting in-person treatment is difficult for patients with confirmed cases of COVID-19 or those who are self-isolated; however, healthy individuals can opt for these treatments. Both acupuncture and pharmacopuncture can be performed. If KM treatment over the phone or video are possible, psychotherapies can be useful: in particular, emotional freedom techniques recently registered via a new health technology assessment can be an option. Self-care methods, such as meditation, progressive muscle relaxation, and autogenic training, can be practiced.

From the perspective of research, selection of the target population is crucial. Prior to research, it is crucial to train KMDs to use objective psychological tests and give standardized psychotherapy and instructions for self-care methods. For study designs, developing various research designs is also crucial. A research design that I can suggest at this time is a cross-sectional study on the characteristics of research subjects: we can study the characteristics and emotions that are often expressed and to what extent they are prevalent in patients with pathophobia, particularly those exposed to a relatively new disease. Moreover, the distribution of patterns needs to be identified in the confirmed cases of COVID-19, those who are self-isolated, and those who are not to evaluate the differences among these subgroups. We can include a battery of questionnaires to evaluate the effectiveness and safety of KM interventions administered over the phone. Because well-designed and controlled trials are not feasible in a remote consultation setting, we could try observational research despite its relatively lower evidence level. My suggestion for potential research areas includes prospective observational studies that evaluate changes before and after treatments, and case-control studies to observe differences between groups that received and did not receive the KM treatment for psychiatric symptoms as well as the aforementioned psychotherapy and self-care methods.

#### 2.5. Areas for the improvement of safety and validity data

**Chung:** What should be done to produce improved safety and validity data?

**Park:** When preparing for this discussion, I carefully examined the medical charts used at the KM teleconsultation center. Even after considering both limitations that consultation is over the phone and only ready-made herbal prescriptions are available, I was able to identify a few areas for improvement. Let me begin with the charts. First, bowel movements. If patients used a standardized evaluation tool for bowel movements, the reliability of data could have been relatively higher despite the use of treatment without contact. I noted that KMDs who are involved in the preliminary diagnosis or treatment were regularly taking turns. This can lead to personal biases among the doctors. I believe that this situation could have been avoided by using a standardized tool, e.g. the Bristol stool scale.<sup>9</sup> This scale provides illustrations and descriptions written in easy words, and can thus be used intuitively. If consultation and prescription using telecommunication technology such as video is available, it would make things much easier. I believe the use of a simple smartphone application that requests patients to make a simple choice could lead to increasingly accurate results.

Second, I focus on fever, one of the most important symptoms in infectious diseases. It was noted that patients were asked to check their temperature on their own. However, the charts alone cannot determine when the measurements were taken or to be taken again later, or how patients felt when the temperature was taken. To improve the chart, I would adjust measurement intervals between 2–8 h, depending on a patient's severity, and would suggest periodic checks for vital sign of the patient. As patients also experience "chills", I wondered whether the degree

of shivers can be measured. I also considered that the presence and absence of “chills” is of higher importance because it can be an accompanied symptom of fever. Increased significance could have been attributed to determining whether or not a patient experienced “chills”. In KM, “chills” may refer to how much a person detests cold stimulus or how much a person dislikes feeling cold. Including descriptions regarding the difference between these two types of “chills” would have proven useful.

The symptom assessment also includes fatigue. Because of its subjective nature, deriving an objective assessment of fatigue is a difficult task. However, 5- or 7-point Likert scales or a visual analog scale can be used. In addition, the severity of symptoms, such as dry mouth, headache, and muscle pain can be distinctly classified. I also recommend using generalized tools, such as 5- or 7-point Likert scales or VAS for this purpose. Moreover, vomiting can be accompanied by nausea or may be perceived as a preceding symptom. Distinguishing between the two symptoms can be difficult. Assessing nausea and vomiting as a single item may have provided better results. Indicating the severity of nausea does not provide significant help, in terms of clinical data. Instead, differentiating between nausea and vomiting and keeping track of how often these symptoms occurred by writing down the frequency of occurrence during a specific period can prove to be useful. For diarrhea, I have already presented the Bristol scale.<sup>9</sup> This scale is used to assess the shape of the stool. However, the number is of greater importance. While assessing the number, it is important to consider how many times compared to the last time and average number over a few days. Moreover, a report of accompanying symptoms, such as incomplete evacuation and urgency, should be encouraged to report because it plays a crucial role in determining the prescription of KM.

Another aspect that can be improved is that this chart lacked quality of life assessment because there were many mild cases of COVID-19 as well as recovering patients who benefited from improvements in their quality of life, rather than treating their symptoms directly. Any available simple questionnaires could have been used for this purpose. It can also be used for patients who have already developed symptoms.

Finally, if we consider clinical research, I believe that including the safety data is essential as the general public is worried that herbal medicine can have detrimental effects on the liver. We have received a lot of criticism regarding this issue. In my opinion, including a question about side-effects in the chart currently used at the KM teleconsultation center was a good decision. Furthermore, I believe that continuous monitoring of adverse events can help construct data regarding frequently used herbal prescriptions. We may also conduct a follow-up study with regular observations or introduce a system wherein a patient can receive an objective evaluation, such as a blood test. We could be benefited by considering the possibility of evaluating the complete recovery rate and the time required to complete recovery, the morbidity rate, the rate of reconfirmed cases, and the degree of improvement in the quality of life among people who received KM treatment through a follow-up study over a specific period of time after their complete recovery.

In conclusion, I believe that constructing a symptom assessment system that minimizes the measurement bias, can increase the reliability of the evaluation and accumulating data, though retrospective, will serve to determine the reliability and safety of KM treatment on COVID-19.

## 2.6. The relationship between COVID-19 and cardiovascular diseases

**Chung:** Many issues were highlighted regarding the relationship between COVID-19 and cardiovascular diseases. Can you explain how COVID-19 is related to the cardiovascular system based on domestic and international cases? Moreover, please spec-

ify the noteworthy points that one should remember while treating patients with COVID-19, and specify which parts can be integrated in the research approach.

**Kwon:** Before discussing the management of cardiovascular abnormalities after COVID-19, I would like to briefly talk about the current situation. The first case wherein cardiovascular issues were noted was that of a 21-year-old woman with no underlying medical condition, who had been diagnosed with COVID-19.<sup>10</sup> After she was diagnosed with COVID-19, we took her chest X-ray to check for pneumonia and the enlarged heart and diagnosed myocarditis were identified. Typically, when a person is diagnosed with myocarditis, they have to live the rest of their life with the condition of heart failure. After treatment, although she had tested negative for COVID-19, myocarditis was still noted and her heart functions have yet to recover. Similar cases have been reported overseas. In Wuhan, 19.7% of the Zhongnan hospital research team showed signs of cardiovascular abnormalities.<sup>11</sup> Although none of them had underlying medical conditions, there was evidence of electrocardiogram abnormalities and an increase in Troponin-I level, which can occur in the presence of coronary artery anomalies.

Another paper examines how the COVID-19 virus attacks the blood vessel and causes multiple organ injuries.<sup>12</sup> This paper also reviews three cases of patients with COVID-19. In all of the three cases, the blood vessel was attacked via angiotensin-converting enzyme 2 (ACE2) and showed signs of abnormalities in vascular functions, thus leading to vasoconstriction, decreased blood flow, and, ultimately, multiple organ failures through microvascular dysfunctions.

In addition, there were cases wherein 68%, 44%, and 60% of SARS patients developed dyslipidemia, heart abnormality, and blood glucose abnormality, respectively. Similarly, COVID-19 patients can develop cardiovascular abnormality even after the treatment of the viral infection.<sup>13</sup> Therefore, we should develop a long-term prognosis observation. Moreover, I believe that we should control for heart abnormalities that may appear in the future and KM treatment can be used alongside heart failure symptom management. In particular, taking a diuretic may fail to resolve shortness of breath or edema for some heart failure patients. In my opinion, the most reasonable herbal medicine to recommend is *Oryeong-san* (*Wuling-san* in Chinese, *Goreisan* in Japanese). For older patients with intractable heart failure, there is no other treatment than the so-called *Lasix* (*furosemide*) as well as a diuretic called *tolvaptan*. However, approximately 30% of patients are not benefited with both treatments. This is particularly true among older adult patients: a Japanese study involved two groups of participants, those that responded to *Tolvaptan* and those who did not, wherein a significant increase in the amount of urine and decrease in brain natriuretic peptide (BNP) level upon giving *Oryeong-san* to participants who had not responded to *tolvaptan*. Among *tolvaptan*-responsive participants, adding *Oryeong-san* to *tolvaptan* decreased the frequency of rehospitalization and improved BNP level after a year.<sup>14</sup> Although *Oryeong-san* is not covered by health insurance, I believe that it may be useful to utilize the readily available herbal medicine preparations that are not expensive.

Moreover, systematic reviews and meta-analyses on herbal medicine for chronic heart failure suggested that integrative approaches with WM treatment led to better outcomes.<sup>15</sup> The herbs primarily used in China are ginseng and milk vetch root (*Astragalus membranaceus*, *Huangqi*) for invigoration. These are represented by *Samgi-decoction* (*ShenQi-tang* in Chinese, *Jingito* in Japanese), *Jinmu-decoction* (*ZhenWu-tang* in Chinese, *Shinbuto* in Japanese), and *Gamisaengmaek-san* (*JiaWeiShengMai-san* in Chinese, *Kamishomyakusan* in Japanese). In Japan, *Oryeong-san* is popular as a dampness-draining diuretic medicine. Regardless of which prescription has been used, we should develop measures to prepare against potential mass incidences of heart failures. Because

providing acupuncture treatment at the well-known points, such as PC6, HT8, LI4, and LR3, can help prevent heart failure from deteriorating via autonomic regulation, we can also consider utilizing this approach.<sup>16</sup>

I will now present my suggestions for policymaking. Rehabilitation management programs for patients that have fully recovered from COVID-19 will be useful. If these programs are developed, I believe that participation from internal KM as well as psychiatry is necessary. When the government sets up registry research for a long-term prognosis, because it would include follow-up data for cardiovascular abnormalities, hospitals providing KM treatment should consider arranging similar settings for active participation in the future.

Finally, the Japan Society for Oriental Medicine is conducting evaluations on the effects of symptomatic treatment of COVID-19 including herbal medicine. Because we are doing remote consultation and treatment, we must check on the progress of patients and I believe that our hard work deserves cooperation from the government. The reason why I believe that symptomatic treatment is necessary is because the success rate of antiviral therapy would be low—at which point, patients have to turn to symptomatic treatment. What are the prescriptions and herbs that work best in symptomatic treatment? I believe that this question will become a significant theme in the future, and we need to develop solutions to address it.

### 3. Summary

Unlike in the past swine flu, SARS, or MERS outbreaks, KM experts from various fields agree that KM community is playing a bigger part in COVID-19 pandemic in spite of regulatory challenges. Telemedicine in pandemic could be more actively utilized in light of the present KM teleconsultation center's achievements. Data from KM teleconsultation centers would be useful to establish an evidence-base for effectiveness and safety of KM treatments if they are properly collected and analyzed. It might be beneficial to integrate KM and WM in response to acute viral infectious diseases in the future but the inclusion of KM in the national disease control system is required.

### Acknowledgements

The authors thank Dr. Jeeyoung Shin, Ms. Eunji Kim, and Ms. Jooyoung Jo for their administrative work for the online panel discussion event. We also appreciate Drs. Gunwoong Kim and Gajin Han for transcription and proofreading of the manuscript.

### Author contributions

Seungwon Kwon: Data curation, Writing - original draft, Writing - review & editing. Heebum Chung: Writing - original draft. Younggun Kang: Writing - original draft. Insoo Jang: Writing - original draft. Jun-Yong Choi: Writing - original draft. In Chul Jung: Writing - original draft. Jae-Woo Park: Writing - original draft. Hyangsook Lee: Conceptualization, Methodology, Data curation,

Writing - original draft, Writing - review & editing, Supervision, Project administration, Funding acquisition.

### Conflict of interest

The authors declare that they have no competing interests.

### Funding

This work was supported by the National Research Foundation (NRF) of Korea funded by the Korean government (Ministry of Science and ICT, grant no.: NRF-2020R1A6A6017334).

### Ethical statement

This research did not require an ethical approval as it does not involve any human or animal research.

### Data availability

The full recording of this online panel discussion (in Korean) can be accessed at [https://www.kmcric.com/education/speciallecture/view\\_seminar/42558](https://www.kmcric.com/education/speciallecture/view_seminar/42558).

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