



Overview of the 84th Annual Scientific Meeting of the Japanese Circulation Society — Change Practice! —

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Due to the COVID-19 pandemic, the 84th Annual Meeting of the Japanese Circulation Society (JCS) was held in a web-based format for the first time in its history as “The Week for JCS 2020” from Monday, July 27 to Sunday, August 2, 2020. All sessions, including general abstracts, were streamed live or on-demand. The main theme of the meeting was “Change Practice!” and the aim was to organize the latest findings in the field of cardiovascular medicine and discuss how to change practice. The total number of registered attendees was over 16,800, far exceeding our expectations, and many of the sessions were viewed by far more people than at conventional face-to-face scientific meetings. At this conference, the power of online information dissemination was fully demonstrated, and the evolution of online academic meetings will be a direction that cannot be reversed in the future. The meeting was completed with great success, and we express our heartfelt gratitude to all affiliates for their enormous amount of work, cooperation, and support.

Key Words: Change practice; Respecting patient values; Shared decision making

The 84th Annual Meeting of the Japanese Circulation Society (JCS) conference was originally scheduled for March 2020, but due to the spread of COVID-19 it was decided to postpone JCS 2020 Kyoto, and members were informed on February 21, 2020.

It was announced on May 12, 2020 that the meeting would be held in the summer as an online scientific meeting using the Web, based on President Kimura's idea that:

Although the spread of the new coronavirus has left many people in financial trouble, it is an important mission of the Japanese Circulation Society to provide its members with opportunities to learn the latest information on cardiovascular care and to consider cardiovascular care in the era of With COVID and Post COVID.

In addition, even though it is online, it is valuable for many members to have the opportunity to present and discuss in front of chairpersons and commentators, and it is also a good opportunity for viewers to see the faces of many of their colleagues after a long time.

Conducting Academic Meetings Online

We discussed what the society should be like in the age of With COVID, and this time we chose to have the academic meeting online. In order to implement this, a digital team was organized within the President's School, and we brought our ideas to the conference administration office and discussed them at great length. One of the major advantages

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Figure 1. President Kimura's speech at the opening ceremony (graphic provided by Nozomi Co.).

of holding academic meetings online is that, unlike on-site conferences, spatial asynchronization is possible. The merit of being able to connect online from anywhere in Japan or around the world, without having to travel for long periods of time, was thought to be very significant for cardiologists and staff involved in cardiology, who are busy with daily clinical work and research. Conversely, one of the major purposes of academic conferences is “interactive communication” between presenters and the audience. One of the most exciting aspects of academic conferences is the opportunity for active discussion and deepening of understanding, which can provide feedback on one’s own research and daily clinical practice. At a time when the number of opportunities for cardiovascular physicians to get together and discuss is drastically decreased, it is particularly important to have a place for sessions with “interactive communication” rather than just uploading presentation slides. Therefore, we decided to hold all the originally scheduled sessions either through live or on-demand streaming.

Sessions were delivered using Zoom (Zoom Video Communications, San Jose, CA, USA), and the audience could ask questions by writing them in the Q&A system. In some sessions, “audience response” was used. The purpose of this was to visualize the opinions of the audience using the voting function in Zoom, and to discuss audience opinions in the session. In addition, all sessions other than those that were live streamed, including general presentations and posters, were recorded in advance, and the recorded videos were distributed on the conference website. The videos, including those of the live streamed presentations, were available on the conference website for approximately 3 months after the conference, until noon on Friday, October 30, 2020.

Planning by the President’s School

At JCS 2020 Kyoto, we made many new attempts as a presidential school project. The main theme was “Change

Practice!”, which aimed to organize the latest findings in the field of cardiovascular medicine and discuss how to change practice.

The opening ceremony featured a performance by the Kyoto University Symphony Orchestra and a sand art performance, followed by a speech on “Mental Health in the Age of New Coronas” by Mr. Taiko Matsuyama from Taizo-in at Myoshinji Temple. Mr. Matsuyama cited the actions of Emperor Shomu in fighting smallpox in the Nara period (710–794) and stressed the importance of gathering our minds together in times of emergency. Next, Dr. Kimura, President of the Society, explained the significance and goals of holding this conference under the title of “Thinking About the Future of Cardiovascular Care” (**Figure 1**). Finally, in response to the spread of COVID-19, we distributed a video of a conversation between Professor Shinya Yamanaka of the Kyoto University iPS Cell Research Institute and Professor Hiroshi Nishiura, an infectious diseases expert. This conversation was recorded just before the conference, but because it was very timely it was made public on YouTube and other media before the conference and was widely reported in the media.

The Mikamo Lecture “Coronary CT Angiography Will Replace Invasive Angiography: A 360 Degree View Point” by Professor Patrick Serruys was a very enthusiastic online lecture (**Figure 2**). In addition, past colleagues and former students of Professor Serruys made surprise appearances, making it a heartwarming and special occasion. Professor Masatoshi Hagiwara’s Mashimo Memorial Lecture “Splicing Therapy for Inherited Heart Diseases” showed how therapies are being found for intractable diseases.

In line with the theme of “Change Practice!”, we had planned a series of 8 change practice seminars, each of which contained an argument that practice should be changed in this way. In addition, although indications for treatment have rarely been discussed at recent conferences, many sessions incorporated audience responses to promote interactive discussions with the audience. Furthermore, 15

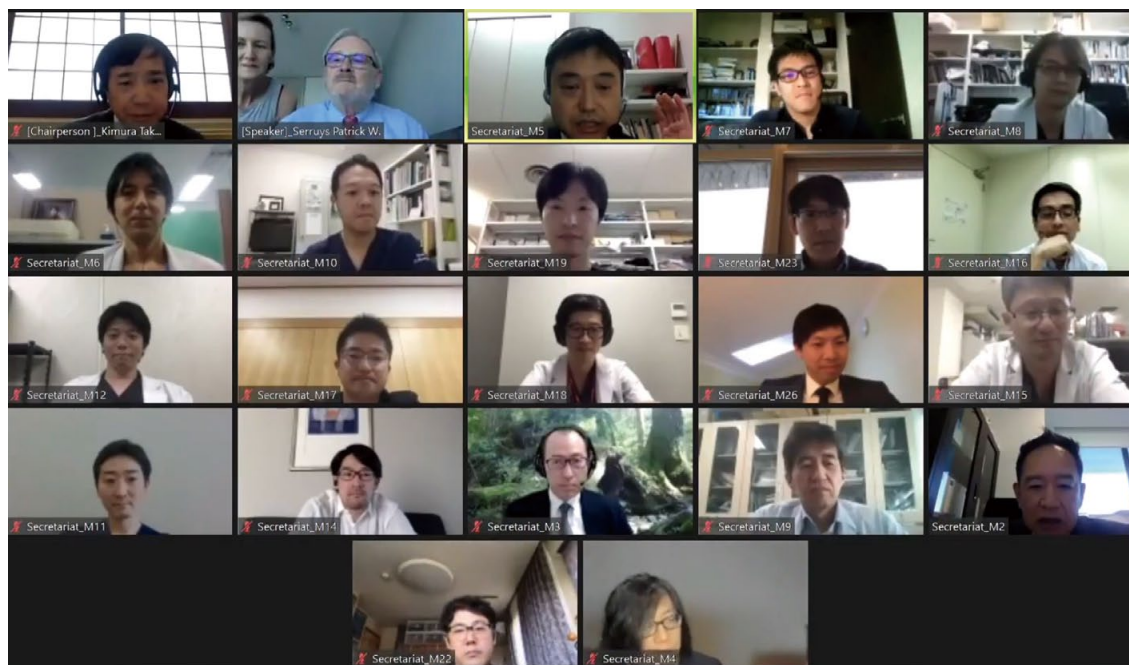


Figure 2. Professor Patrick Serruys, who gave the Mikamo Lecture, and his students.



Figure 3. Panelists at the closing session on cardiovascular care in the era of new coronas.

sessions were planned as debate sessions, covering themes that should be discussed currently in a wide range of cardiovascular fields. It is also especially important to think on a case-by-case basis, and we planned a total of 20 sessions on “What to do About This Case” and “When Complications Occur” to provide places to learn how to solve many problems encountered in daily clinical practice. In addition, as a session to promote clinical research, “Fundamentals of Clinical Research: Case Study” provided an opportunity to learn about the entire process of clinical

research, from planning, design, data collection and analysis to the writing of papers, through actual cases. Moreover, with the intention of encouraging medical students and early trainees to become interested in cardiovascular medicine and to experience presentations in English at an early stage, we held a session of case reports in English by medical students and early trainees for educational discussions.

We also planned a series of 8 sessions titled “Health and Longevity in the Age of 100 Years of Life” because we

believe that the origin of prevention and treatment lies in improving lifestyle. As for “mental health”, a topic that has not been taken up much in the past, we had talks from a high priest and a neuroscientist from Kyoto. We also planned to learn about measures to achieve a long and healthy life from new perspectives on “diet”, “exercise”, “sleep”, “quitting smoking”, “falling”, and “changing lifestyle”. The “Health and Longevity in the Age of 100 Years of Life” series was open to the public under the slogan “Open the Society to the Public”.

Initially, JCS 2020 was to be held jointly with APSC, but the joint session was postponed due to COVID-19. However, APSC-JCS joint sessions were held on July 28 and August 1 and 2, 2020, with 3 live and 4 on-demand sessions.

In the closing session on cardiovascular care in the era of COVID-19, it was reaffirmed that the current situation for hospital management is much more severe than expected (**Figure 3**). Even in such a difficult situation, we medical professionals should hone our “energy in adversity”, and solemnly practice coronary care, emergency medical care, and medical care that are essential for improving people’s health and be role models for society.

A summary of JCS 2020 by disease area is provided below.

Arrhythmia

The special session “Let’s Think About Indication 2: Consider the Indications for Atrial Fibrillation Ablation After the CABANA Trial” was viewed live by 1,899 people, despite the time slot of 8:40 pm on a Tuesday night. The indications for ablation were also discussed in Symposium 3, and were debated by both arrhythmia specialists and general practitioners. Another presentation was given at the ACC-JCS Joint Symposium on the progress and limitations of the ablation of ventricular arrhythmias. Furthermore, prevention, in addition to treatment, should not be forgotten. The genetic basis of atrial fibrillation (AF) was clarified in Symposium 10 on precision medicine, the most advanced preventive treatment for AF.

Coronary Artery Disease

The indications for the treatment of coronary artery disease (CAD) were discussed in detail in a plenary session, change practice session, and special session. The plenary session also included keynote speeches by Drs. John A. Spertus and Stephan Windecker. These sessions discussed, among other things, how messages from the ISCHEMIA trial should be incorporated into clinical practice in Japan and what the future indications for coronary revascularization for stable CAD should be.¹ In the opening clinical research session, Dr. Kimura presented “Main Results From the CREDO-Kyoto Cohort-3 in the New Generation DES Era”. In this lecture, it was reported that there was no excess risk of percutaneous coronary intervention (PCI) relative to coronary artery bypass grafting (CABG) for cardiovascular death in patients with both 3-vessel and left main disease in the CREDO-Kyoto PCI/CABG Registry Cohort-3, and that the mortality outcomes of patients with severe CAD had improved over time in the past 2 decades, despite the more frequent use of PCI. These sessions emphasized the importance of “shared decision making” in making treatment decisions, providing the patient with the right information to make appropriate decisions, and respecting patients’ values. In a debate session, the choice

of PCI or CABG was discussed for left main coronary artery (LMCA) disease or multivessel disease among cardiovascular surgeons and coronary interventionists. Recently some long-term results of clinical studies comparing PCI and CABG for LMCA have been reported,²⁻⁴ and the discussion was so in-depth that there was not enough time to cover this old, but still ongoing, topic. In another plenary session, the importance of genetic analysis of CAD was also discussed.

Heart Failure

Heart failure is a disease that is becoming more and more prevalent with the aging of society. There were many sessions ranging from the elucidation of the causes of the onset of heart failure to the development of the latest treatment methods. In the plenary session, there was a keynote lecture by Dr. Junichi Sadoshima and a lecture on multidisciplinary treatment for Stage D patients by Dr. Douglas Horstmannshof. In the symposium, various issues related to heart failure in a super-aged society were clarified, and new approaches for elderly heart failure patients were introduced. In addition, sarcopenia and frailty, which are frequently observed in the elderly, were highlighted as factors that are strongly associated with subjective symptoms and prognosis in heart failure patients, as well as new targets for heart failure treatment. Conversely, the pathogenesis of heart failure with preserved ejection fraction (HFpEF), which is due primarily to impaired diastolic function, has not yet been elucidated. At the AHA-JCS Joint Symposium, the clinical features and molecular mechanisms of HFpEF were discussed. There was also a session on the recent angiotensin receptor-neprilysin inhibitor (ARNI) and sodium-glucose cotransporter 2 (SGLT-2) inhibitors as possible new treatments for heart failure, as well as a session on palliative medicine in the terminal stages of heart failure.^{5,6}

Imaging

In the symposium on diagnostic imaging, an attempt to apply artificial intelligence (AI) to diagnosis was introduced. The roles of AI in evaluating the coronary fractional flow reserve (FFR) ratio from coronary computed tomography (CT) images and in evaluating the possibility of myocardial ischemia from single photon emission CT (SPECT) images by site were introduced. FFR-CT was one of the topics of the conference because it has recently become eligible for reimbursement in Japan and may be widely used in the future. The indications, pitfalls, and cost-effectiveness of FFR-CT were also discussed in other symposium and co-medical sessions. At the CSC-JCS Joint Symposium, there was a report on the use of intravascular ultrasound and optical coherence tomography that can lead to better PCI outcomes. In the KSC-JCS Joint Symposium, there were presentations on 3-dimensional echocardiography, automation of measurements, and recent advances in diagnostic imaging in collaboration with other modalities.

Structural Heart Disease

In recent years, the favorable outcomes of transcatheter aortic valve replacement (TAVI) have fundamentally changed the treatment of aortic stenosis. In the change practice session, participants discussed how to change the practice of aortic stenosis. In addition, in the topics session, there were discussions on the management of low-flow, low-gradient arterial stenosis and on the indications for

Table. Number of Views per Session

Rank	Session name	No. live views	No. on-demand views	Total no. views
1	The 4th Lecture on Medical Safety		34,966	34,966
2	The 48th Cardiovascular Education Session I: Recent Trends in Valvular Disease Treatment		21,237	21,237
3	Opening Ceremony	6,707	6,790	13,497
4	The 48th Cardiovascular Education Session II-1: Palliative Care in Heart Failure Needed Now		7,614	7,614
5	ACC-JCS Joint Symposium: Catheter Ablation for Ventricular Arrhythmias		7,139	7,139
6	The 48th Cardiovascular Education Session III-2: The Changing Indications for PCI – The Importance of Myocardial Ischemia Assessment		6,712	6,712
7	The 48th Cardiovascular Education Session III-1: Imaging Diagnosis of Cardiomyopathy		5,967	5,967
8	Team Medicine Session, Educational Lecture 2: Current and Future Exercise and Nutritional Management of Chronic Heart Failure		4,664	4,664
9	Team Medicine Session, Educational Lecture 5: Diagnostic Imaging Useful in the Cardiovascular Field		4,488	4,488
10	The 48th Cardiovascular Education Session II-2: Cardiovascular Disease and Driving/Employment Support		4,487	4,487
11	AHA-JCS Joint Symposium: Clinical Characteristics for HFpEF and Its Possible Molecular Mechanism		3,307	3,307
12	Team Medicine Session, Educational Lecture 1: Know and Win as a Team, No Smoking		3,287	3,287
13	Morning Seminar 1: Learning About ECG-1		3,088	3,088
14	Let's Think About Indication 2: Consider the Indications for Atrial Fibrillation Ablation After the CABANA Trial	1,899	1,033	2,932
15	Fireside Seminar 1: Change Practice in Japanese Coronary Artery Disease Patients!	2,837		2,837
16	Topics: First Aid 3: Don't Miss This Sign! Tips for Differentiating Acute Chest Pain in the Emergency Setting	1,645	1,135	2,780
17	Learning the Guidelines from Cases 6: Guidelines for the Treatment of Cardiac Amyloidosis	1,631	896	2,527
18	Topics: Heart Failure 9: Palliative Medicine for Heart Failure-1 – Palliative Care When It's Not Even Terminal?	1,643	715	2,358
19	APSC JCS 2020 Webinar 1: Cardiometabolic Disease in Asia	1,882	427	2,309
20	Let's Think About Indication 1: Consider the Indications for PCI After the ISCHEMIA Trial	1,539	603	2,142

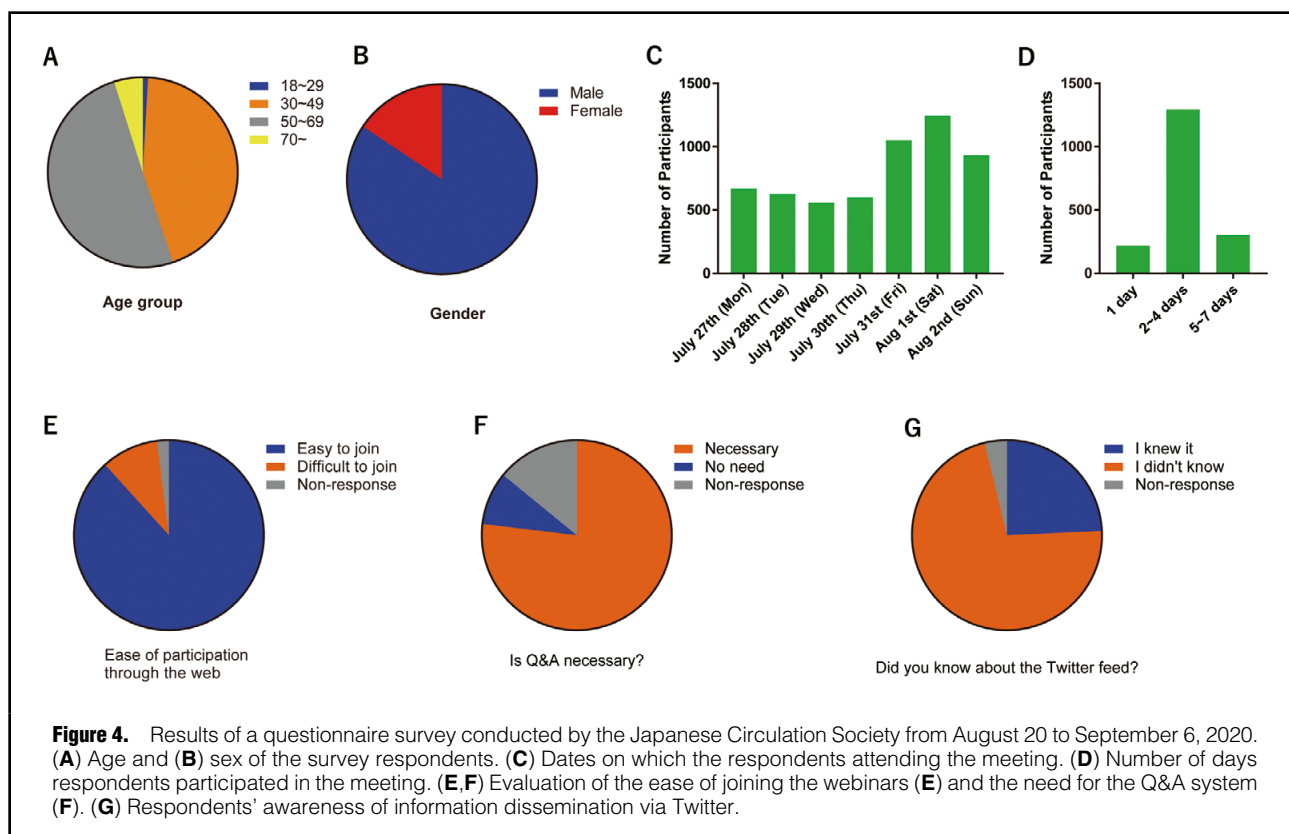
ACC, American College of Cardiology; AHA, American Heart Association; APSC, Asia-Pacific Society of Cardiology; ECG, electrocardiography; HFpEF, heart failure with preserved ejection fraction; JCS, Japanese Circulation Society; PCI, percutaneous coronary intervention.

MitraClip and left atrial appendage closure, which have been attracting attention recently. Conversely, it is necessary to proceed with these new treatments in a particularly safe manner. In another topics session titled “Serious Complications Occur at This Time”, there was a discussion on safe TAVI and MitraClip treatment. In the symposium, a multicenter study on balloon pulmonary angioplasty in Japan showed that it has favorable effects in normalizing pulmonary artery pressure and improving long-term prognosis in non-surgical patients. In the field of structural heart disease, most technologies have been introduced from overseas. A number of up-and-coming researchers who have been trying to develop medical devices in Japan presented their attempts in the symposium titled “Development of Domestic Medical Devices in ALL JAPAN”.

Antithrombotic Therapy

Improvements in drug-eluting stents have significantly reduced the incidence of stent thrombosis. In recent years, pioneering large-scale clinical trials to evaluate de-escalation of antithrombotic therapy (e.g., OAC-Alone, AFIRE, STOPDAPT, STOPDAPT2 etc.) have been conducted in

Japan, and the results of these trials are becoming available.⁷⁻¹⁰ In the plenary session “De-escalation of Anti-thrombotic Therapy Following PCI” and the change practice session, the latest information from Japan and abroad was shared and discussed from various perspectives. The plenary session “What Does Cause Embolic Source of Undetermined Source (ESUS)?” discussed how to overcome ESUS in order to eradicate cerebral infarction. In addition, the importance of thrombus and bleeding control during treatment with veno-arterial extracorporeal membrane oxygenation (VA-ECMO; as percutaneous cardiopulmonary support) and implantable left ventricular assist devices (LVAD) was recognized, with both VA-ECMO and LVAD having shown great potential in the treatment of patients with reduced cardiac function. Recent advances in research on thrombosis, which is closely related to cardiovascular medicine, were introduced in the symposium “Thrombosis Research – Update”. At the symposium “Precision Medicine Targeting Atrial Fibrillation and Cardiogenic Embolism”, there were detailed presentations at the forefront of precision medicine for AF, such as risk stratification of AF using multilevel information including



genomic information, detection of latent AF using Internet of things (IoT) devices, and the use of AI. There was also a lot of discussion on venous thrombosis in the debate and topics sessions.

Basic Science

In the area of basic research, which has made remarkable progress, we enhanced the sessions for basic research. In the plenary session “Epigenome/RNA and Signaling”, the forefront of advanced research was introduced, and in the “Clinical Application of Regenerative Medicine in the Cardiovascular Field”, the current status of regenerative medicine in the cardiovascular field, which is moving towards clinical application, was discussed. In the Basic session, we featured 7 organized sessions as follows: (1) Drug Discovery and Design to Conquer Cardiovascular Disease; (2) Single Cells: Technology to Biology; (3) Genomic Medicine Update; (4) Multifaceted Mitochondria; (5) Non-coding RNA Research and Its Clinical Application; (6) Genome Editing: CRISPR, Stem Cells, and Beyond; and (7) iPSCs: Limitations and Future Challenges. In addition, 3 sessions were organized to introduce the current status and future potential of basic research to clinicians in an easy-to-understand manner, namely “Crisis in Science Nation”, “Basic Research for Clinicians”, and “Dawn of Cardiovascular Genomics!”. A number of Japanese researchers studied in the laboratory of Dr. John Ross Jr., and the session “John Ross Jr. MD, the Great Scientist and Mentor – His Scientific Contribution in the Development of Cardiology” was planned in his memory.

Number of Viewers

In normal (face-to-face) academic meetings, there are many instances when people are interested in a session but cannot attend it; at JCS 2020 Kyoto, all sessions were available on-demand for approximately 3 months after “The Week for JCS 2020”. The top 20 most viewed sessions are listed in **Table**. The opening ceremony was viewed live by 6,707 people, and all the other sessions in the top 20 were watched live or on-demand more than 2,000 times. The number of viewers was far greater for many sessions than for traditional face-to-face scientific meetings. The power of the online forum in terms of information dissemination was clearly demonstrated, and we strongly feel that evolving online academic meetings is a direction that cannot be reversed in the future.

Postevent Questionnaire

During the conference some problems were experienced, such as a delay in the connection to the application server for a short time. Conversely, we believe that the participating doctors enjoyed the feeling of attending a conference for the first time in a long time, gathered new information, and were stimulated with regard to their future practice and research. At the Japanese Circulation Society, we conducted a questionnaire survey from August 20 to September 6, 2020. The results of this survey are summarized in **Figure 4**. Most survey respondents were aged in their 30s–60s, and 84% were male (**Figure 4A,B**). Although it was thought that most people would attend the conference on weekends, approximately half the participants also attended on

weekdays. In addition, many people participated on multiple days (**Figure 4C,D**). Web-based sessions were considered easy to participate in by 88.2% of respondents (**Figure 4E**), and the Q&A system was considered necessary by 76.9% of respondents (**Figure 4F**). However, 82.0% of respondents did not ask questions through the Q&A system, suggesting that there is a need to consider the method by which participants can ask questions. Furthermore, only 24.3% of respondents were aware of the session information that was disseminated using Twitter during the conference (**Figure 4G**).

Closing Remarks

The 84th Annual Meeting of the Japanese Circulation Society (JCS 2020) had to be held online due to the spread of the new coronavirus infection. It took a month since prerecording started on July 1, 2020, but we were able to finish recording all sessions successfully. The keywords for JCS 2020 were “change practice”, “thinking about indication”, “shared decision making”, “respecting patient values”, “changing lifestyles”, and “disseminating information to society”. In the future, we must continue these practices as our mission, and we are proud to say that JCS 2020 was able to at least play a pioneering role.

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Disclosures

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