The Vulnerable Cardiologists of the COVID-19 Era

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Summary
The coronavirus disease 2019 (COVID-19) pandemic has changed the lives of healthcare professionals, especially vulnerable physicians such as young or female cardiologists. In Japan, they are facing the fear of not only infection but also weak and unstable employment, difficulties in medical practice and training anxiety, implications for research and studying abroad, as well as worsened mental health issues due to social isolation. Conversely, some positive aspects are seen through the holding of remote meetings and conferences. Here, we suggest a new working style for cardiologists, as well as offer solutions to the medical employment problems that have been taken place in Japan.

Key words: Female, Physician, Pandemic

The global pandemic of coronavirus disease 2019 (COVID-19) has been responsible for changing people’s daily lives throughout the world. In an attempt to protect against the disease outbreak, the government of Japan has declared a state of emergency twice since April 2020. This has led to a self-limiting society that requires limited mobility and social distancing. In addition to the fear of the disease itself, financial insecurity due to termination, unemployment, and stay-at-home orders have burdened individuals, which has, in turn, increased stress and has led to health status deterioration due to reduced activity. Such situations tend to have more of a negative impact on young or female cardiologists working in the treatment of acute diseases, including in the practice of COVID-19 treatment.

Here, we present an overview of the current status of healthcare professionals (HCPs) in Japan, particularly vulnerable cardiologists, and propose solutions to the problems that have come about during the COVID-19 pandemic.

Issues Encountered by Physicians During the COVID-19 Pandemic

Clinical practice difficulties: HCPs working in hospitals with active COVID-19 infections are anxious about the risk of contacting the infection themselves and spreading it to their families. They might even face discrimination due to their care of COVID-19 patients. This is why some physicians and nurses who previously engaged in COVID-19 care have left their positions. Social discrimination, as well as relatively low incomes, may have played a role in the high turnover rate among HCPs.

In addition, the risk of income deterioration and termination of physicians has increased. This is due to the restrictions placed on clinical practice, the occurrence of infection clusters, and the deterioration of the hospital management from medical care reduction. A consequence of this would be physician unemployment. According to a questionnaire by the Japanese Medical Association Woman Doctor Bank, 7% of 902 female physicians reported that they were forced to leave their jobs, and 18% of them were currently unemployed, with many practicing physicians expressing fears about termination. A questionnaire based on the survey including both male and female physicians is needed, however, we can presume that male physicians are at a lower risk of being terminated, as they are less likely to be part-time workers.

When a state of emergency was initially declared, daycares and schools were shut down. This security measure forced a number of female HCPs to leave their work due to the lack of childcare, and would place children at home, making it difficult for physicians to proceed with their work and research obligations. Lyu, et al. conducted an online survey of the Physician Moms Group in 2015. They found that 1715 of the responding female physicians were responsible for the majority of the housework. These female physicians, who are playing active roles in their respective households, have become more burdened than their male counterparts during the COVID-19 pandemic.

Training anxiety, implications on research and studying abroad: In the era of the COVID-19, reduced training time has made it difficult for medical students and young cardiologists to gather enough training experience. The cancellation or postponement of specialty certificate examinations has increased. This is due to the restrictions placed on clinical practice, the occurrence of infection clusters, and the deterioration of the hospital management from medical care reduction. A consequence of this would be physician unemployment. According to a questionnaire by the Japanese Medical Association Woman Doctor Bank, 7% of 902 female physicians reported that they were forced to leave their jobs, and 18% of them were currently unemployed, with many practicing physicians expressing fears about termination.

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ainations and academic conferences made it hard for them to maintain their motivation. For example, the cardiovascular specialist examination was suspended in 2020, and the 84th annual scientific meeting of the Japanese Circulation Society (JCS) was postponed in August 2020. Many young physicians are anxious about their training and fearful of practicing with inadequate training experience, as well as feeling isolated due to their inability to communicate properly.

Moreover, recently-trained cardiologists may be immediately assigned to specialized wards for COVID-19 care, especially in national or university hospitals, or might care for COVID-19 patients without appropriate payment. In such cases, they may not be able to adequately practice their cardiovascular specialties. These young physicians practicing during the pandemic have complex issues related to not just the infection itself but also to insufficient training, and a decrease in income, which may also be due to the prohibition from practicing in other hospitals due to the risk of spreading the virus.

In addition, young cardiologists who wished to study abroad were forced to postpone or even cancel their plans altogether. Even if they are given the opportunity, e-learning alone may not provide the practical experience necessary. It also lacks close communication with foreign physicians, which is one of the important reasons for studying abroad. Unfortunately, the increase in hate crimes and discrimination against individuals of Asian descent in some regions should also be taken into consideration by physicians considering studying in Western countries.

In Japan, research activities were temporarily suspended after the first State Emergency Declaration. This has been an obstacle for graduate students who are on timely restrictions to produce research results.

**Mental health impact:** Depressive tendencies of trainees, greater in female interns, were reported even before the COVID-19 pandemic. However, mental health during this time has become an even more serious issue, particularly among females. In the United States, HCPs are at an increased risk for mental illnesses such as depression, anxiety, burnout, and insomnia, which have further increased under the stressful circumstances of COVID-19 due to isolation, reduced income, and risk of infection. Although 70% of HCPs engaged in COVID-19 care are females, medical care has been affected by the large-scale retirement of nurses after the pandemic in some hospitals in Japan.

In a 2020 tentative report by the Police Agency in Japan, the rate of suicides was much higher than the number of deaths caused by COVID-19, and the prevalence among females has increased 80% more than that prior to the pandemic. This indicates the greater burden placed on females in the era of COVID-19. There are also reports on the mental health of HCPs in Japan. In 2020, Matsumoto, et al. conducted a mental health assessment of 588 HCPs on working days in order to study exposure to the coronavirus, anxiety, and depression. They found that 47 (8.0%) reported severe anxiety and 40 (6.8%) reported severe depressive symptoms, with older age and female sex being common risk factors. More recently, a questionnaire conducted by Yamano, et al. on 1032 children in the COVID-19 era showed that the risk of stress among the children of HCPs was twice as high as that of non-healthcare professionals’ children. This indicates that the adverse effects seen among HCPs are common among their relatives as well.

**Negative implications of COVID-19 on female physicians (including cardiologists):** A lot of burden has been placed on young cardiologists during the COVID-19 pandemic, and the impact on females, in particular, is more serious in all aspects, as previously mentioned. Before the start of the pandemic, female physicians, including cardiologists, reported increasing difficulty with achieving academic advancement, difficulty publishing papers, lower rates of award and grant acquisition, fewer educational opportunities, lower average salary, and a higher household work burden than male physicians. Much effort and many suggestions have been made worldwide to support female physicians, such as special organization intervention, setting up diversity committees, awards and scholarships for female cardiologists, childcare facilities, and equal gender opportunities dictated by law. However, there may be many female physicians who have suffered consequences as a result of COVID-19. When Andersen, et al compared the proportion of female authors’ articles in 1893 papers related to COVID-19 with those in 2019, the number of first female authors fell by as much as 19%. This decline was explained by the greater role played by female physicians at home, which may have prevented them from engaging in active research. Conversely, the majority of male researchers have been able to engage stably in their jobs, as well as achieve accomplishments. Thus, there is great concern about the adverse impact of the pandemic on female researchers. In the United States, institutions were recommended to cater to the needs of all physicians by addressing pandemic-related occupational hardships, extending deadlines for achieving promotion or tenure, and investing in safe childcare options for employees.

The impact of COVID-19 on pregnant HCPs is concerning in clinical situations. Although all the effects of COVID-19 on pregnancy and fetuses have not been shown, there is a risk of severe consequences, which requires avoidance of infection as much as possible, improved work circumstances, and wearing masks. There are also differences in the response to pregnant HCPs depending on the country and medical institution, and there could be cases of pregnant HCPs who are not able to demand strict protection from the risk of infection. For example, European countries have banned pregnant HCPs from participating in COVID-19 care. In Japan, the Ministry of Health, Labor, and Welfare requested the development of environments that encourage pregnant females to stay at home, use telework and time-lagged commuting, and implement efforts to prevent infection. However, these requests are not mandatory and there are no penalties for the lack of cooperation. Therefore, it has been left to the discretion of individual hospitals whether or not to engage in these practices.

**Positive implications of COVID-19 on physicians:** The COVID-19 pandemic has created a number of challenging
circumstances for vulnerable cardiologists, but at the same time, some positive implications have been observed. Firstly, scientific societies and conferences are being held online to avoid large crowds. The annual science meeting of the JCS and other international societies were held remotely after the pandemic started. Geographic factors, clinical work, physician’s office policies, and other factors such as difficulties finding child-care or parental-care, had made it previously difficult for some to participate. However, this has become easier since they could attend virtually online from home. It is possible to participate in academic meetings while having parental responsibilities, which has made it easier to gather knowledge that could not have been possible otherwise when traveling was necessary. Since on-demand delivery of scientific meetings was also made available, viewing at any convenient time has provided additional flexibility. Moreover, the cost associated with participating in academic conferences abroad has decreased. Unnecessary details have also been omitted, resulting in a shorter duration of teleconferences.

Secondly, some busy physicians have been given the opportunity to spend more time at home with their friends and families. Cardiologists, who are often busy and engage in routine work, were given more time to spend with their loved ones due to online conferences from home and event restrictions, shutdown of schools, and working restrictions. In addition, it is reported that preterm birth rates have been decreasing worldwide since the pandemic began.35)

Thirdly, serious consideration of career building, the pros and cons of residency, and relationships with colleagues and family members are all factors that go into the career development of physicians. This pandemic may have provided the opportunity and time for more realistic expectations, as well as communication with mentors and role models. Who could have accurately controlled and predicted the outcomes of their careers even before the pandemic? It is crucial to find the advantages in any difficult situation and to continue to exploit them in the future.

Proposed Recommendations

In short, the following issues were discussed. The pandemic has made working more difficult due to employment termination and household circumstances, as well as reduced opportunities to practice, train, and learn. It has minimized connections with others and highlighted mental health issues. All of these difficulties are more noticeable among female physicians.

Medical practice: What steps should be taken in order to overcome these difficult situations brought forth by the pandemic? Regarding the risk of being terminated, the government and hospital administrators should protect the employment of young physicians. In particular, because female physicians are at an increasing risk of termination, it is recommended that male physicians help in carrying out housework so that female physicians can be employed in full-time jobs. It is also necessary to consider minimizing working hours in the healthcare field. As telemedicine develops, it may be possible for physicians to practice from home in the future.36)

Because gender norms are deeply rooted in cultures and traditions, their consequences are clear in the medical field in Japan. To this day, the prevalence of female physicians is only 20% in Japan, which is the lowest among Organization for Economic Co-operation Development countries.37) There has been an issue of preferring male students at medical school entrance examinations.38) Because male physicians who can work long hours, are preferred, the proposed goals of supporting female physicians could be merely a façade. These problems must be gradually improved, even if they cannot be solved immediately.

Training and research: Various attempts have been made regarding clinical training and research. Most educational institutions provide classes through remote learning with communication between instructors and students. In addition, some institutions have created a system that allows for surgical procedure learning through virtual reality.39)

It is also necessary to update the researcher evaluation system. Due to the imposed travel restrictions, it may be inappropriate to measure studying abroad as educational achievements and we need to comprehensively evaluate researchers with detailed scoring methods on the research itself, its social effects, and educational career as a teacher. Instead of insufficient English training, young researchers should improve their English language skills and some Japanese hospitals should hold daily conferences for this purpose. In addition, Japanese researchers can extend their scientific input from foreign sources through books, web conferences, and lectures.

Mental health: As a countermeasure to the mental health issues of vulnerable cardiologists, it is necessary to include technology in an attempt to avoid isolation. Even if young physicians are unable to find other physicians to communicate with, technology may enable nationwide matching, as shown in the United States. As the number of online conferences and employment opportunities increase, these HCPs need to be familiarized with and be given a platform where physicians can easily communicate.

Support of female physicians: It is crucial to protect cardiologists against infection in medical care. Therefore, recommendations on the maintenance of cardiovascular medical care in COVID-19 have been made by the JCS.40) Vulnerable cardiologists should receive support in a comprehensive manner that covers research, clinical, and spiritual care. Female physicians are at an increased risk of termination due to the pandemic, limiting their practice and research activities and isolating them from society, which in turn affects their mental health. Although it is difficult to provide a quick and comprehensive solution, it is necessary to share the issues of HCPs in the COVID-19 pandemic to society as a whole and to coordinate efforts. These include shortening working hours and removing pregnant physicians from COVID-19 care.

We would like to make a slightly more detailed proposal. One workplace alone may cause problems that cannot be solved due to the lack of human resources. If there were a super-physician office that connects multiple medical departments, it could be helpful for female physicians who are temporarily unable to attend due to childcare ob-
ligiations, workplace issues, and patient care.

Promoting the activity of female cardiologists may induce the improvement of medical care quality. Directly supporting younger female researchers by research grants is not the only way. The committee for diversity promotion of JCS successfully recruited female cardiologists for 20% of chair person positions at the 85th annual scientific meeting of the JCS, after preparing the manual for new chair persons by Kanki, et al. There have been other support measures that have not yet been attempted in Japan. Intervention trials were conducted at Johns Hopkins University, whereby a special committee was established to assess researchers, interview female physicians every 6 months, identify career obstacles, and assess the degree of annual progression. The intervention also provides all physicians with education on gender stigma and discrimination, reduces holiday and evening meetings, and successfully corrects disparities between males and females. This is done through annual checks by chief professors and the Special Commission on the Adequacy of Salaries and Promotion. Reforming an evaluation system that will add scores to mentors guiding young female physicians in the clinical and academic fields may be helpful. It is also crucial to share those problems with the whole society, governments, academic societies, hospitals, laboratories, and individuals on a continuous basis.

**Conclusion**

We have presented various issues faced by young or female cardiologists in the COVID-19 era and proposed tentative plans (Figure). Although these are challenging times, this pandemic may be providing some opportunities to improve HCP work in the future and the environment surrounding female physicians. By dilating the door suffering from ‘severe stenosis’ due to the COVID-19 pandemic, we can not only solve but evolve in the long run in the face of long-standing problems of the environment of cardiologists.

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**Disclosure**

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