

The role of cardiologists in the coronavirus disease 2019 pandemic

To the editor We have read with great interest the excellent exposure by Sławiński and Lewicka¹ on the cardiac implications of coronavirus disease 2019 (COVID-19). The aim of this letter is to support the manuscript underlying the role of cardiologists in the pandemic.

With advances in research, a multisystemic involvement of COVID-19 slowly emerges, and the cardiovascular system appears to play a central role in the fight for the reduction of mortality linked with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection.

Lung disease, proportionally to its extent and severity, increases cardiac workload facilitating decompensation of patients with pre-existing heart failure or coronary artery disease. Heart disease is associated with very high case fatality rate (CFR; 10.5%), also greater than chronic respiratory disease (CFR, 6.3%). Similarly, hypertension is an important risk factor for death, comparable to cancer (CFR respectively 6% and 5.6%)².

SARS-CoV-2 showed the ability to hit organs and systems directly, with replication in tissue, or indirectly through the imbalance induced in the immune system with consequent inappropriate production of inflammatory mediators. The pathway is still unclear, but myocarditis could be one of the conditions underlying acute myocardial injury associated with increased mortality and is widely reported in COVID-19.

Systemic inflammation, increased circulating catecholamines, and shock conditions can destabilize atherosclerotic plaques. In addition, coagulation and vascular alterations could also be responsible for an increased rate of venous thromboembolism, so a high-dose heparin therapy is currently studied in a randomized controlled trial.

A further crucial aspect linked to the relation between pandemic and heart diseases emerged from the analysis of the trend in diagnosis and hospitalizations for all other conditions not related to COVID-19. Published data from many

areas of the world are showing the drastic reduction of emergency room access for several pathologies, even urgent ones, which do not cause presentation symptoms similar to COVID-19 pneumonia. Although this is predictable, within certain limits, in postponable diagnostic tests for chronic or mild symptoms, many concerns are related to acute coronary syndrome (ACS). A recent report from Italian cardiovascular centers³ showed a significant decrease in ACS-related hospitalization rates during the COVID-19 outbreak with 13.3 admissions per day as compared with 18.9 admissions per day in the same period of 2019 (incidence rate ratio, 0.70; 95% CI, 0.63–0.78; $P < 0.001$). Similarly, a severe reduction in ST-segment elevation myocardial infarction has been reported in Spain (around 40%) and the United States (around 38%). Recent Italian data⁴ have suggested a significant increase in general mortality during the pandemic period not fully explained by COVID-19 cases alone. It is not yet clear whether these observations may be due to lack of access to treatment by patients with ACS for fear of contracting SARS-CoV-2 infection in the emergency room or during hospital stay. However, this hypothesis is reinforced by other observations⁵ that highlight a great delay between the onset of symptoms and the first medical contact of patients with ACS during the outbreak of the pandemic in China.

The challenge that cardiologists face could be well summarized in the fight against 3 Fs:

- Frailty related to previous cardiovascular conditions
- Future cardiovascular involvement due to COVID-19
- Fear of viral contagion

So what role should the cardiologist play in the pandemic scenario? 1) Participate in the multidisciplinary management of patients with COVID-19 and a pre-existing heart disease; 2) learn to recognize and counteract the onset of cardiovascular involvement by SARS-CoV-2; 3) ensure the presence of “safe” treatment paths and

correct information for all patients who, even if not affected by COVID-19, are forced to access the hospital in this difficult period.

ARTICLE INFORMATION

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Authors' reply We thank Fedele et al¹ for their insightful comments. They constitute a valuable support, from the perspective of over 6 months, to our article, which referred to data from the first months of the COVID-19 pandemic.

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is the cause of coronavirus disease 2019 (COVID-19), has huge impact on all medical specialties, including cardiology. As emphasized by Fedele et al¹, this is due not only to the direct influence of the virus on the cardiovascular system.¹ The possible consequences of the COVID pandemic on the psyche of both patients and healthcare workers should not be underestimated.

As indicated, a significant reduction in the number of hospitalizations due to acute coronary syndrome was noticed in Italy, and a significant reduction in the incidence of ST-segment elevation myocardial infarction (STEMI) was reported in Spain and the United States (40% and 38%, respectively) during the COVID-19 pandemic. It was also observed in Poland, although to a lesser extent. According to data obtained from 10 cardiology centers, the number of percutaneous coronary interventions performed due to myocardial infarction decreased by 25%

during the COVID-19 pandemic (13% for STEMI and 27% for non-ST-segment elevation myocardial infarction).² One possible reason, as suggested by Fedele et al,¹ may be the fear of contracting SARS-CoV-2 during the hospital stay. However, we can also consider factors that could positively affect the health of patients and thus contribute to reducing the incidence of STEMI, such as improved air quality, or the implications related to lockdown, such as less physical activity or taking medications regularly.

In our article, we mentioned 2 cases of heart transplant patients affected by COVID-19.³ Another issue that should be mentioned is the qualification of a heart transplant donor. As the incidence of COVID-19 increases, identifying a potential donor (who may be asymptomatic or with a mild COVID-19 manifestation) is crucial. Current recommendations include avoiding donors with diagnosed or suspected COVID-19, and if the donor had COVID-19, he should be COVID-19 free (polymerase chain reaction tested) for a minimum of 14 days.

On the other hand, the COVID-19 pandemic is associated with a significant progress in telemedicine. Although direct contact with a patient is essential for proper diagnosis and treatment implementation, in some cases, modern techniques prove to be extremely helpful. This is especially true for patients with cardiac implantable electronic devices (CIEDs). A significant number of patients with CIEDs undergo remote monitoring, which remains a powerful tool for controlling heart rhythm and device functioning outside cardiac center. In the current guidelines, remote monitoring is given a class I recommendation for routine use in patients with CIEDs; however, unfortunately, there is no reimbursement for remote monitoring in Poland.⁴ Some researches see another opportunity for cardiological telemedicine progress. Roldán-Gómez et al⁵ indicate electronic stethoscopes and remote electrocardiograms (in limited extent available in wearables, eg, Apple Watches), which facilitate cooperation between general practitioners and cardiologists.

Referring to the 3 Fs describing the challenges for cardiologists in the COVID-19 pandemic era proposed by Fedele et al,¹ we propose to supplement them with 2 more points:

- Frailty related to previous cardiovascular conditions
- Future cardiovascular involvement due to COVID-19
- Fear of viral contagion
- Future diagnostic tools, including telemedicine
- Facts (not fake news) based medicine

With regard to the last 2 points, the cardiologist should broaden his knowledge of modern diagnostic techniques. In the field of future diagnostic tools, including telemedicine, the

necessary support should be provided by national scientific societies (guidelines and recommendations) and the government (financial support, reimbursement). Regarding the last F, effort of the entire medical community and a continuous increase of our knowledge are required, based on critically peer-reviewed publications on the cardiovascular aspects of COVID-19.

ARTICLE INFORMATION

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