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Cardiac arrest outcomes in the COVID-19 era

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The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the disease it causes coronavirus disease 2019 (COVID-19) has constituted a major challenge over the past 2 years and will continue to be challenging for healthcare professionals into the future [1, 2]. The SARS-CoV-2, as indicated by numerous scientific publications, causes havoc not only in the respiratory system, but also in the cardiovascular system. SARS-CoV-2 has an affinity for heart muscle cells; therefore, it also poses a risk of developing cardiological complications, including myocardial infarction, arrhythmias and heart failure. In addition, due to the damage to blood vessels and affects to blood clotting disorders, the risk of thromboembolic complications also increases [3]. Undoubtedly, however, the greatest risk is the risk of cardiac arrest.

It is true that the survival of patients in cardiac arrest are influenced by many factors, including factors related to the presence of comorbidities, the time from cardiac arrest to the initiation of resuscitation, and the quality of resuscitation. For both out-of-hospital cardiac arrest and in-hospital cardiac arrest, healthcare professionals should treat each patient as potentially infectious until COVID-19 has been ruled out and cardiopulmonary resuscitation (CRP) should therefore be performed wearing personal protective equipment for aerosol generating procedures [4]. In out-hospital cardiac arrest (OHCA) cases, due to the need to prepare medical personnel, including wearing personal protective equipment-aerosol generating procedure (PPE-AGP), the travel time to the patient is extended — so his chances of survival decrease with each minute of not taking CRP [5]. On the other hand, the mere performance of medical procedures, including chest compression, or securing the airways by medical personnel wearing PPE-AGP, may reduce the effectiveness of individual medical procedures [6].

SARS-CoV-2 itself, as shown by numerous studies, also adversely affects the prognosis of patients with cardiac arrest. In a meta-analysis by Bielski et al. [7] regarding OHCA survival before and during the COVID-19 pandemic, the authors showed that the survival to hospital discharge was 11.5% and 8.2%, respectively, before the pandemic and during the pandemic. Bielski et al. [7] also showed a significant impact of COVID-19 on the 30-day survival rate in this group of patients, where during the COVID-19 pandemic this survival rate was 2.8% lower than in the corresponding period before the pandemic. In turn, Borkowska et al. [8] analyzing the departure of the ambulance service in the first months of the COVID-19 pandemic to patients with OHCA, indicates a very low percentage of return of spontaneous circulation, amounting to only 9.4%. In turn, Szarpak et al. [9] in the

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meta-analysis on in-hospital cardiac arrest, patients indicate a slightly higher survival of patients in the period preceding the pandemic than during COVID-19 (35.6% vs. 32.1%, respectively; p = 0.16).

In conclusion, when using PPE-AGP, medical personnel during CPR should use devices that will increase the effectiveness of resuscitation. Thus, in terms of airway management — supraglottic ventilation devices or video laryngoscopes and mechanical chest compression systems should be used for chest compression [10].

Conflict of interest: None declared

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