

Cardiac Arrest Catastrophe among Residents and Health Care Professionals Amid Covid-19 Delta Surge

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Abstract

Since the emergence of acute respiratory syndrome coronavirus (SARS-CoV-2, the virus that causes COVID-19), which was first reported in China in December 2019 and later declared a global pandemic by the World Health Organization on March 11, 2020, nearly 51 million cases of COVID-19 have been reported worldwide, with over 333446 deaths last year. Aside from the acute mortality triggered by COVID-19, there are increasing concerns about the impact of the pandemic on health facilities. Patients may have been hesitant to phone emergency medical services (EMS) or go to emergency rooms due to lockdown and movement restrictions enforced in some nations, as well as the fear of contamination in hospitals, resulting in inadequate health care and delays. Furthermore, entire healthcare systems have been restructured to deal with this enormous influx of people with a highly contagious new disease. Routine medical activities, such as scheduled hospitalizations and consultations, were postponed in order to focus on COVID-19 care and prevent exposing stable patients to the danger of contamination at the hospital. Overall, the indirect impacts of the COVID-19 pandemic could have a negative effect on human health. Healthcare workers suffer from occupational stress during the pandemic, which, in turn, may lead to distress, burnout, psychosomatic problems, and cardiac arrest during their interventions in the treatment of hospitalized patients. Now with the death of medical residents in a row, many doctors and residents are using social media to share their bitter experiences with everyone with the hashtag "Tell a resident"

Keywords: Pandemic, Health care, OCT, Delta variant, Stress

Introduction

Out-of-Hospital Cardiac Arrest (OHCA), lower rates of successful Cardiopulmonary Resuscitation (CPR), and increased mortality have all been observed in residents and health care practitioners that have been severely overwhelmed by work. According to several small case studies, In-Hospital Cardiac Arrest (IHCA) survival is low in patients with COVID-19, although it remains unclear whether IHCA outcomes differ between patients with and without COVID-19 [1-3]. Given the growing pandemic, more research is being conducted to see what happens if someone suffered a cardiac arrest. Here, we analyze the epidemiology and etiology of COVID-19-related OHCA, the impact of healthcare system restructuring on patient outcomes, the impact of COVID-19 on attitudes toward resuscitation, and new ethical challenges posed by the pandemic's using all of healthcare resources [4,5].

Early in the COVID-19 pandemic, system difficulties may have contributed to higher OHCA incidence and mortality, particularly in affected healthcare professionals and clinicians. Many non-urgent cardiovascular diagnostic tests and elective treatments were postponed or canceled as a result of the rapid

and unexpected reconfiguration of healthcare systems to restrict face-to-face interaction and accommodate telemedicine. In order acute stress reaction, anxious response, and vicarious traumatization increased among the frontline. These activities may have unintentionally increased or delayed care for our healthcare, who are at the high risk of OHCA. The fear of getting COVID-19 may have contributed to healthcare residents delay and avoiding treatment [4-6].

Furthermore, recent research has shown that more than 25% of OHCA sufferers have had contact with the healthcare system in the past 90 days. Hospitalization rates for acute MI, heart failure, and stroke have decreased significantly during the pandemic. This decline in hospitalization accompanied a country-wide reduction in emergency medical service (EMS) responses and a doubling of EMS-attended deaths. Following a state-wide "shelter-in-place" order, single-center research in Denver found a drop in ambulance activations and a 2.2-fold rise in the incidence of OHCA, which the authors attributed to higher MI-related OHCA and restricted access to care. COVID-19 has also disproportionately harmed low-income communities, racial/ethnic minorities, and domiciled or jailed people, who

already have limited access to healthcare, low CPR rates, and delayed EMS service. Even after accounting for comorbidities that affect minority populations unequally on healthcare system and residents in medical fields, Lai et al. discovered that black, Hispanic, and Asian people were at an increased risk of COVID-19-related OHCA and death, highlighting the systemic inequalities in the US healthcare system both before and during the pandemic [7].

Discussion (The death bell rings again among frontline)

The restructuring of the healthcare system was not restricted to hospitals, and policy changes aimed at protecting frontline clinicians by EMS agencies may have had a negative impact on OHCA outcomes. The intermediate recommendations were screening 911 calls for COVID-19, restricting the number of responding staff, halting chest compressions during aerosolizing operations like intubation, and not sending patients without ROSC to hospitals. During the COVID epidemic, a meta-analysis of six studies found longer EMS response times, fewer EMS-initiated resuscitations, poorer ROSC rates, and survival to hospital discharge [8].

However, this analysis was confounded due to missing data and differences in outcome measures, resulting in significant heterogeneity between trials. An examination of OHCA across the United States indicated no variations in EMS response times or treatment length during the pandemic compared to previous years. The authors did notice a significant reduction in ROSC in all of the communities studied, including those with low COVID-19 mortality rates, implying that interim recommendations may have been implemented too broadly, obstructing the EMS personnel's ability to respond to OHCA in lower prevalence areas unnecessarily.

Finally, during the pandemic, modifying the management strategy for emergent medical situations, and providing care to patients can lead to stress, anxiety, and fear among the practitioners that unfortunately lead to such as acute MI, could have contributed to an increase in cardiac arrest mortality. As the first country hit by COVID-19, China devised a fibrinolysis-first strategy for ST-elevation MI (STEMI) to avoid provider exposure [10].

Nevertheless, research revealed that this technique was linked to poorer rates of timely coronary reperfusion as well as higher risks of recurrent MI, cardiogenic shock, and heart failure. Despite major society guidelines recommending continued use of primary percutaneous coronary intervention (PCI) for STEMI during the pandemic, multiple international studies have found a substantial reduction in PCI and longer door-to-balloon and cumulative ischemic stroke times, which may have made a significant contribution to increased mortality among the first responders [11]. During the pandemic, a study in the United Kingdom of 524 individuals with OHCA accompanied by acute MI found lower rates of coronary angiography, longer time to reperfusion, and higher death [12-14]. Anecdotal findings imply that during the pandemic, the prevalence of mechanical complications of MI increased, underscoring the deleterious consequences of delayed or missed patient presentation and limited PCI utilization. Indeed, a New York hospital system observed a 4.97-fold increase in OHCA with a 50 percent reduction in acute coronary syndrome admissions, which was connected with a surge in COVID-19-related mortality

[15, 16]. The North American COVID-19 STEMI registry, which was announced recently, may shed more light on the effect of COVID-19 on STEMI management and its connection to OHCA results [17,18].

Conclusion

We noticed a significant increase in OHCA incidence during the first wave of the COVID-19 pandemic, which was followed by a considerable drop in survival due to the stress of work, insomnia, and anxiety in the medical profession. The surge in confirmed COVID-19 infections in the city matched the pattern of increased incidence and mortality in front line health care. With more COVID-19 infections likely in the Delta variant, these findings have significant implications.

EMS services will need to prepare for probably significant increases in OHCA, and the healthcare system as a whole will need to guarantee that indirect deaths are adequately addressed. Unfortunately, such an effort is hardly observed and in many cases are neglected. As a result, it is essential to keep researching and resolving the effects of COVID-19 on cardiac arrest systems of care in order to enhance the chances of meaningful survival for as many victims as possible, and to educate future pandemic responses of health care workers.

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