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## Out-of-Hospital Cardiac Arrests and Resuscitations During COVID-19



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New York City saw a three-fold increase in the number of cardiac arrests from March to April 2020 during the COVID-19 pandemic than during the same period in 2019.

The purpose of this study was to understand the characteristics and outcomes of people who experienced out-of-hospital cardiac arrests during the pandemic in New York City and whether COVID-19 had any effect on the frequency, presentation, and resuscitation outcomes on these patients.

The study included 5325 patients (56% men, average age 71 years), of which 3989 participants were in the 2020 COVID-19 period and 1336 in the 2019 comparison group.

The study found that compared to 15.9/100,000 cases in 2019, EMS resuscitated three times more patients in 2020 (47.5/100,000). The 2020 cohort was older with a mean age of 72 years compared to 68 in 2019. Patients resuscitated in 2020 were more likely to be people of colour (33% vs. 20%), have hypertension (53% vs. 46%), have diabetes (36% vs. 26%), physical limitations (56% vs. 47%). At the same time, patients in 2020 were observed to have increased odds of asystole and pulseless electrical activity and reduction in the return of spontaneous circulation (ROSC) (18% vs. 35%), sustained ROSC with death rates above 90%.

The increase in cardiac arrests due to COVID-19 is explained well by the extreme inflammatory response that the virus invokes in the body through injury to the endothelial cells leading to a state of hypercoagulability. This, in turn, can destabilise atherosclerotic plaques that can cause adverse cardiac events and even death.

The study identified a minority race to be a risk factor but could not explain the causation. It can be assumed that minority populations may have had increased exposure to the virus due to crowded housing, inability to work from home, and the ability to seek care for COVID-19-related morbidity due to limited access to health care. This delay could have allowed the virus to cause more damage and complicate pre-existing chronic conditions leading to cardiac arrests outside hospitals. More research is needed to explain this risk factor better.

In addition, data from various studies, including a meta-analysis suggested that EMS responders were less likely to use invasive airway management procedures (such as endotracheal intubation associated with better outcomes) that increased their exposure to COVID-19 patients. They used other less invasive procedures that had less favourable outcomes even though they had full access to required personal protection equipment.

The findings of this study are limited by at least two facts. Firstly, it only included participants who received EMS care. Secondly, deceased patients' COVID-19 infection status was not ascertained, and it is hard to say if the deaths were related to COVID-19.

Source: [JAMA](#)

Image Credit: iStock

Published on : Thu, 25 Jun 2020