Title: The Impact of COVID-19 on Incidence and Outcomes from Out-of-Hospital Cardiac Arrest in Texas

ABSTRACT

Introduction:

Emerging research demonstrates lower rates of BCPR, public AED (PAD), worse outcomes, and higher incidence of out-of-hospital cardiac arrest (OHCA) during the COVID-19 pandemic. We aim to characterize the incidence of OHCA during the pandemic period and describe changes in OHCA outcomes and survival.

Methods:

We analyzed adult OHCAs in Texas from the Cardiac Arrest Registry to Enhance Survival (CARES) during March 11-December 31 of 2019 and 2020. We stratified cases into pre-COVID-19 and COVID-19 periods. Our prehospital outcomes were bystander CPR (BCPR), public AED use (PAD), sustained ROSC, and prehospital termination of resuscitation (TOR). Our hospital survival outcomes were survival to hospital admission, survival to hospital discharge, good neurological outcomes (CPC Score of 1 or 2) and Utstein bystander survival. We created a mixed effects logistic regression model analyzing the association between the pandemic on outcomes, using EMS agency as the random intercept.

Results:

There were 3,619 OHCAs (45.0%) in 2019 compared to 4,418 (55.0%) in 2020. BCPR (46.2% in 2019 to 42.2% in 2020, P < 0.01) and PAD (13.0% to 7.3%, p < 0.01) decreased. Patient survival to hospital admission decreased from 27.2% in 2019 to 21.0% in 2020 (p < 0.01) and survival to hospital discharge decreased from 10.0% in 2019 to 7.4% in 2020 (p < 0.01). OHCA patients were less likely to receive PAD (aOR = 0.5, 95% CI [0.4, 0.8]) and the odds of field termination increased (aOR = 1.5, 95% CI [1.4, 1.7]).

Conclusions:

Our study adds state-wide evidence to the national phenomenon of increased OHCA incidence during COVID-19, worsening rates of BCPR, PAD use and survival outcomes.

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