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Incidence of Gunshot Wounds to Head and Neck Increased during COVID-19 Pandemic

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Abstract: Purpose: COVID-19 was declared a pandemic by the World Health Organization on March 2020. Since then, there was an increase in the number of firearm purchases. The purpose of this study was to investigate whether the incidence of gunshot wounds (GSWs) to the head and neck increased during the COVID-19 pandemic.

Materials and methods: This cross-sectional study reviewed patients in the Trauma Registry at Grady Memorial Hospital (GMH) in Atlanta, GA. Patients were included if they: 1) sustained GSW to head and neck, 2) activated the Trauma Registry, and 3) were treated at GMH. Patients were stratified according to date of injury into 1 distinct time period: 1) March 13 to August 13, 2019 (i.e., before the COVID-19 pandemic, BC19) or 2) March 13 to August 13, 2020 (i.e., during initial 6 months of the COVID-19 pandemic, C19) (Figure 1). March 13 was chosen because COVID-19 was announced as a national emergency on that date. The research team collected patient demographics, distressed communities index (DCI), social history, and etiology of GSW. Details regarding extent of GSW injury (i.e., isolated soft tissue, bony, other locations of injuries) were recorded. Injury severity was described using the following variables: status of patient and Glasgow Coma scale (GCS) on arrival to GMH, cardiopulmonary resuscitation (CPR) in Emergency Department (ED), diagnosis of shock on admission, disposition from ED, ICU length of stay (LOS), total days on mechanical ventilator (MV), hospital LOS, and hospital discharge status. Descriptive statistics were performed. Univariate and bivariate analysis were performed. The Chi-squared test was used for categorical variables. Statistical significance was P < .05.

Results: During the study period, 948 patients sustained GSW. Of them, 215 patients had GSWs to head and neck. The BC19 group had 96 patients (78 males) with a mean age of 31.5 years old (range 7-82). The C19 group had 119 patients (101 males) with an average age 32.7 years (range 14-82). Overall, there was a 10.4% increase in incidence of GSW to head and neck during C-19 (Figure 2). The data showed that alcohol abuse was associated with an increase in GSW to the head and neck (P < .0001). The mean DCI for C19 group was lower than BC19 by 8%, meaning that the distress to the population was decreased. GSW to base of skull occurred 34.5% more often during C19 (P = .002), and intracranial injuries occurred 26% more often during BC19 (P = .03).

In the BC19 group, 85.4% of the patients arrived alive to GMH, compared to 16% in C19 group. Patients had shock on admission (BC-19; n = 22, 22.9%, C-19; n = 24, 20.2%). Researchers found that the status on arrival to ED (i.e., alive) was statistically significant (P < .0001).

Outcomes data: Researchers found a 10.4% increase in the incidence of GSWs to the head and neck during C-19. Specifically, the peak incidence occurred during May, June, and July, with 25 cases per month (Figure 2). The peak in incidence was parallel with the shelter-in-place order in the state of GA that was issued on April 3, 2020. The finding is consistent with previous studies that showed an increase in gun violence during the COVID-19 pandemic.

Conclusion: In conclusion, understanding the underlying causes for the increase in GSW to the head and neck during the COVID-19 pandemic is imperative for implementing gun violence prevention programs. Health system leaders should develop partnerships that embrace medical professional organization support to proactively reduce firearm-related injury during periods of social isolation.