Paediatric Trauma during the COVID-19 Pandemic

Dear Editor,

Due to the spread of SARS-CoV-2, the World Health Organization declared the outbreak a Public Health Emergency of International Concern on 30 January 2020, and a pandemic on 11 March 2020.[1] The first case in the Republic of Croatia was reported in Zagreb on 25 February. Until 1 December 2021, 613,914 cases of coronavirus infection had been recorded in Croatia, while 10,967 people had died.[2] Numerous authors report that during a pandemic, the pressure on emergency departments, due to conditions not caused by COVID-19, was reduced.[3-5] Insight into the hospital information system, we were interested in how the pandemic affected paediatric trauma. The analysis covered 15 months of the pre-COVID-19 period (November 2018–January 2020) and 15 months of the COVID-19 period (March 2020–May 2021). We also made a comparison of the following quarterly periods: 3rd, 4th and 5th and 10th, 11th and 12th months of 2019 and 2020, considering the peak of new cases in the mentioned period, and given the lockdown introduced. Differences in variables (number of examinations and number of operations) between observed groups were examined through total percentage change. Continuous variables are expressed as means with standard deviation and were analysed using the Student's *t*-test. Children's Hospital Zagreb is the largest children's tertiary institution in Croatia, which takes care of children from all over the country.

In the 15 months of the pre-COVID-19 period, a total of 33646 children (2243.06 ± 346.66) were examined in the emergency department, while in the COVID-19 period, 26831 of them (1788.73 ± 531.96) were examined ($P = 0.010$) [Figure 1]. The total percentage decline was 20.26%. For the 3rd, 4th and 5th months, the total percentage decline was 46.78%, while for the 10th, 11th and 12th months, it was 32.95%. The largest decline in the number of examinations was in April 2020 (60.24%). When comparing the 3rd, 4th and 5th months of 2019 and 2021, the total percentage decline was only 3.8%. The number of examined children with upper and lower extremity injuries was as follows: upper extremity injuries (pre-COVID-19 period: 8546 [569.73 ± 139.45] and COVID-19 period: 7351 [490.07 ± 171.81]) and lower extremity injuries (pre-COVID-19 period: 6474 [431.60 ± 80.98] and COVID-19 period: 4868 [324.53 ± 135.42]) [Figure 2]. The total percentage decline for upper extremity injuries was 13.98%, while for the lower extremities, it was 24.80%. When only the 3rd, 4th and 5th and 10th, 11th and 12th months were compared, the decline in the number of examinations was as follows: upper extremity injuries (48.20%; 29.70%) and lower extremity injuries (60.23%; 35.20%). The total number of operations, due to strict measures and reduction of the elective programme, decreased statistically significantly in the COVID-19 period (185.47 ± 33.09-> 115.60 ± 23.57 [$P < 0.0001$]). The total percentage decline was 37.67%. When only the 3rd, 4th and 5th and 10th, 11th and 12th months were compared, the decrease in the number of operations was 43.04% and 47.14%, respectively. It was interesting to note that the overall percentage change for surgical treatment of fractures increased by 0.6%. When we look at the above quarterly periods, we note a decline (3.85%; 20%).

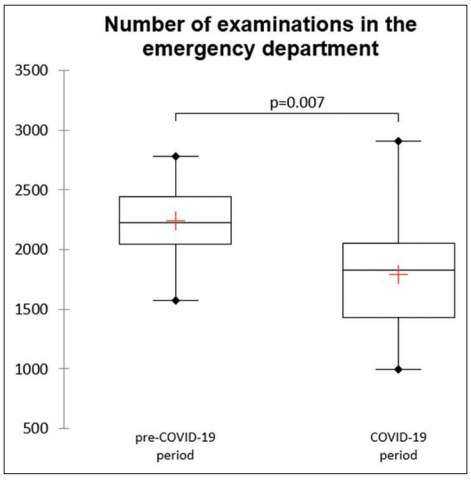


Figure 1: Number of children examined in the emergency department in the pre-COVID-19 and COVID-19 periods

As in the study by Nabian *et al*.,[6] we also observed a decrease in the number of traumatic patients. While they recorded a decline of 52%, we recorded a decline of 19% over a 15-month period (statistically significant for lower extremity injuries). As in the above study, we noticed that fractures of the distal radius and the middle third of the forearm and supracondylar fracture were in the lead. It is interesting to note that they recorded a statistically significant decline in open fractures. The decline was attributed to closed schools, kindergartens and sports activities. Olech *et al*.[7] investigated distal radius fractures in the pre-COVID-19 and COVID-19 periods. They noticed a decrease of 3.8% in the number of hospitalised children and an increase of 18.2% in surgically treated children, while we recorded an increase of 0.6%. We must note that our data refer to a 15-month period and all fractures. Based on 6 weeks of lockdown, Sugand *et al*.[8] noticed a decrease in the number of paediatric trauma by two-thirds (67.9%). Analogous to the above study, when comparing the 3rd and 4th months of 2019 and 2020, based on our data, we record a decrease of 59%. The percentage of those admitted or who underwent surgical intervention remained almost unchanged. Observing elbow and shoulder injuries in the paediatric population, in the first 30 days of the pandemic, Gumina *et al*.[9] also recorded

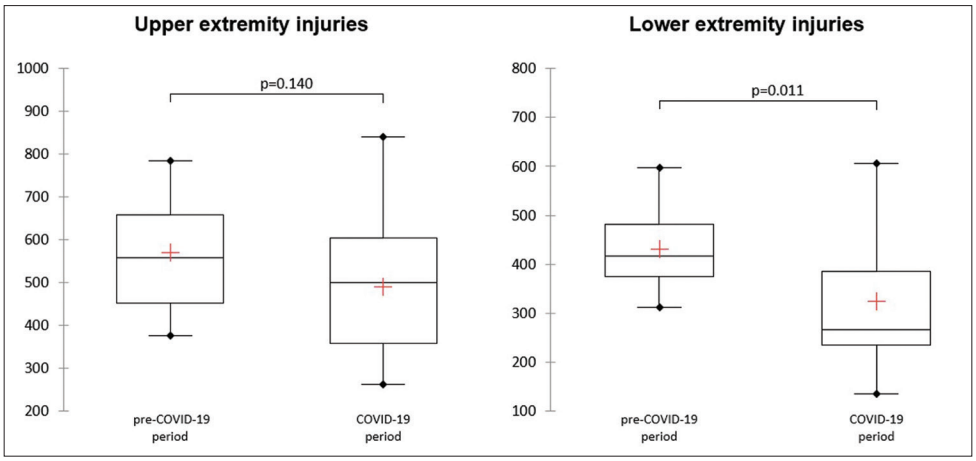


Figure 2: Number of children examined in the emergency department by the injuries of the upper and lower extremities

a decline of 65%. When all types of injuries were taken into account, the decline was even greater, as much as 84.6%.

There is no doubt that COVID-19 affected the number of examinations in the emergency department, but the number of emergency operations did not change significantly. This clearly indicates that conditions that required surgical treatment were adequately treated, without an increase in the number of complications due to a possible delay in arriving at the emergency department.

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Conflicts of interest

There are no conflicts of interest.

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