

# Cardiac emergencies following earthquake

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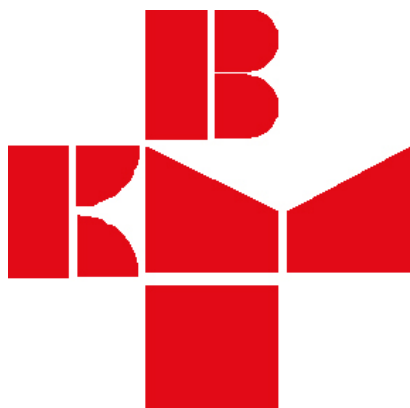
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### Cardiac emergencies following earthquake

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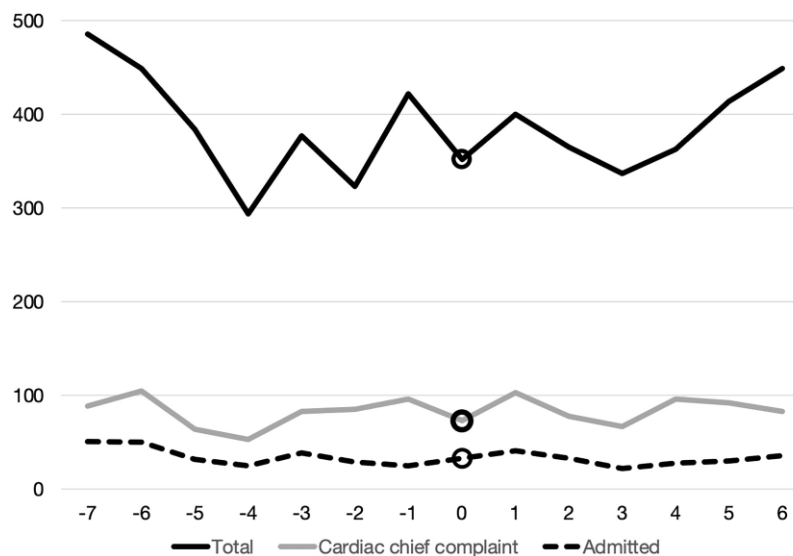
**Introduction:** In 2020 Croatia was stuck with two major earthquakes: on March 22nd with epicentre 7 km north of Zagreb city centre (5.5 magnitude on the Richter scale) and on 29th Decembre with epicentre 5 km south of city of Petrinja (6.2 magnitude on the Richter scale). The authors sought to investigate whether these events had an influence on the number of patients and their characteristics examined in the Emergency Departments (ED) of the five hospitals nearest to the epicentre.

**Purpose:** To examine the number and characteristics of patients with cardiac chief complaint examined in the EDs of the five hospitals nearest to the epicentre.

**Methods:** Data on all emergency visits of patients with cardiac chief complaint examined in two University Hospital Centres and two regional hospitals examined 7 days prior to earthquake, on the day of each earthquake, and during subsequent 7 days were collected. We compared the group of patients seen prior and on the day of the earthquake with the group of patients seen after the earthquake.

**Results:** In the examined period, there were 5575 ED visits, out of which in 1251 (22.4%) cases the chief complaint was cardiac. Daily frequencies of the visits are shown in the Figure. The population was predominantly male (55.2%) with median age of 67 (53-78) years. Patients seen after the earthquake were younger (68 (59-79) vs 72.5 (65-80);  $p < 0.001$ ), less frequently had medical history of hypertension (63.4% vs 78.9%;  $p < 0.001$ ) and cardiovascular disease (32.9% vs 42.8%;  $p < 0.001$ ), and were admitted less frequently (34.6% vs 41.7%;  $p = 0.01$ ). In post-earthquake group, the primary diagnosis was less frequently unstable angina (1.9% vs 5.3%;  $p = 0.001$ ), acute coronary syndrome (15.6% vs 21.9%;  $p = 0.005$ ), heart failure (9.3% vs 19.4%;  $p < 0.001$ ), dysregulated hypertension (13.9% vs 19.4%;  $p = 0.01$ ), but more often non-anginal chest discomfort (28.8% vs 18.0%;  $p < 0.001$ ). Among admitted patients similar trends were observed – patients seen after the earthquake were younger (68 (59-79) vs 73 (65-80);  $p = 0.009$ ), less frequently had medical history of hypertension (73.7% vs 86.8%;  $p = 0.001$ ), the primary diagnosis was less frequently unstable angina (4.9% vs 10.0%;  $p = 0.039$ ), and heart failure (14.8% vs 25.1%;  $p = 0.005$ ). Other patients' characteristics, including length of stay and intra-hospital mortality did not differ significantly.

**Conclusion:** Contrary to previous studies, in this study, no increment in the frequency of cardiac emergencies was detected after the earthquake, however non-anginal chest discomfort was observed more often. A possible explanation is a moderate magnitude of these earthquakes with low number of casualties and predominantly material assets damage.



Figure