Impact of Coronavirus Disease 2019 (COVID-19) Outbreak on Acute Admissions at the Emergency and Cardiology Departments Across Europe

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Abstract

Purpose

We evaluated whether the severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) pandemic was associated with changes in the pattern of acute cardiovascular admissions across European centers.

Methods

We set-up a multicenter, multinational, pan-European observational registry in 15 centers from 12 countries. All consecutive acute admissions to emergency departments and cardiology departments throughout a 1-month period during the COVID-19 outbreak were compared with an equivalent 1-month period in 2019. The acute admissions to cardiology departments were classified into 5 major categories: acute coronary syndrome, acute heart failure, arrhythmia, pulmonary embolism, and other.

Results

Data from 54,331 patients were collected and analyzed. Nine centers provided data on acute admissions to emergency departments comprising 50,384 patients: 20,226 in 2020 compared with 30,158 in 2019 (incidence rate ratio [IRR] with 95% confidence interval [95%CI]: 0.66 [0.58-0.76]). The risk of death at the emergency departments was higher in 2020 compared to 2019 (odds ratio [OR] with 95% CI: 4.1 [3.0-5.8], P < 0.0001). All 15 centers provided data on acute cardiology departments admissions: 3007 patients in 2020 and 4452 in 2019; IRR (95% CI): 0.68 (0.64-0.71). In 2020, there were fewer admissions with IRR (95% CI): acute coronary syndrome: 0.68 (0.63-0.73); acute heart failure: 0.65 (0.58-0.74); arrhythmia: 0.66 (0.60-0.72); and other: 0.68(0.62-0.76). We found a relatively higher percentage of pulmonary embolism admissions in 2020: odds ratio (95% CI): 1.5 (1.1-2.1), P = 0.02. Among patients with acute coronary syndrome, there were fewer admissions with unstable angina: 0.79 (0.66-0.94); non-ST segment elevation myocardial infarction: 0.56 (0.50-0.64); and ST-segment elevation myocardial infarction: 0.78 (0.68-0.89).

Conclusion

In the European centers during the COVID-19 outbreak, there were fewer acute cardiovascular admissions. Also, fewer patients were admitted to the emergency departments with 4 times higher death risk at the emergency departments.

Keywords: Acute cardiovascular admissions; Acute coronary syndrome; COVID-19; Outbreak; SARS-CoV2