

Primary percutaneous coronary intervention during the initial period of the COVID-19 pandemic in a public hospital in Triângulo Mineiro region

Intervenção coronária percutânea primária durante período inicial da pandemia por COVID-19 em hospital público do Triângulo Mineiro

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The severe acute respiratory syndrome coronavirus (SARS-CoV-2), identified in December 2019, in Wuhan, China, is an enveloped, single-stranded RNA genome betacoronavirus that causes pneumonia and severe respiratory failure, which characterize the coronavirus disease 2019 (COVID-19).¹⁻³ This disease was considered a pandemic by the World Health Organization (WHO) and, currently, more than 7.5 million people in the world have already been affected.⁴ Due to the high transmission rate of the disease, which requires healthcare assistance and hospitalization, with the possibility of overloading the health system, several measures were adopted, such as suspension of classes at schools and universities, closing of stores, banning of events, and within the health system, ward and intensive care units (ICU) beds have been specifically reserved for the treatment of patients with COVID-19.

Cath lab reports in Spain, Italy, Austria and the United States showed a decrease of up to 80% in the number of procedures performed, and up to 40% in the number of infarctions treated. One of the arguments used to explain this phenomenon was the possible fear of seeking care in overburdened hospitals with large numbers of infected patients.⁵⁻⁹

The aim of the present study was to evaluate the clinical and angiographic profiles of patients admitted with ST segment elevation acute myocardial infarction (STEMI) at the *Hospital Universitário da Universidade Federal do Triângulo Mineiro* (UFTM) during the first 2 months of the SARS-CoV-2 pandemic, and compare them with a control group of patients admitted in the same period last year. We assessed electronic medical records of patients admitted from March 18 to May 18 of the years 2019 and 2020, diagnosed as STEMI and referred to the cath lab for primary percutaneous coronary intervention.

Qualitative variables were expressed by frequency distribution and assessed using the Chi-square test or the Fisher's exact test, whenever indicated. Quantitative variables were expressed as means and standard deviation, and evaluated by Student's *t* test for variables with Gaussian distribution and for non-parametric variables, whenever relevant. The incidence was calculated as the number of cases divided by the number of days observed in the period. The ratio between the rates was calculated using Poisson regression. MedCalc statistical program was used, and all values of $p < 0.05$ were considered statistically significant.

In the first 2 months of the pandemic, 29 patients with STEMI were referred to the cath lab. The mean age was 59.3 (± 11.3) years, and 72.4% were male. The mean time of pain upon arrival at the hospital was 298 (± 158.5) minutes, and 14.2% of patients arrived outside the therapeutic window. The main risk factors were hypertension and smoking habit (51.7% and 65.5%, respectively), and 93.2% of patients presented with

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Killip I. Of the patients evaluated, six (20.6%) had three or more vessels affected, and 33.3% had significant left ventricular dysfunction (Table 1).

Despite a 14.8% decrease in the number of patients admitted with STEMI, there were no statistically significant differences between the two incidences or in the

clinical and angiographic profiles of both cohorts. The early finding of a change in the profile of care for patients with this type of clinical manifestation is important, since this group has high morbidity and mortality, and this information may help in understanding the effects of the pandemic and in the adoption of public health actions, such as public information campaigns.

Table 1. Clinical and angiographic characteristics

	2019 (March-May) n=34	2020 (March-May) n=29	p-value
Incidence in 62 days	0.54 (0.37-0.76)	0.46 (0.31-0.67)	0.53
Male	21 (61.7)	21 (72.4)	0.37
Age, years	64.0±7.0	59.3±11.3	0.07
Time of pain, minutes	329.2±200.4	291.8±158.5	0.58
Admission in the first 12 hours	32 (94.1)	25 (86.2)	0.40
Hypertension	19 (55.8)	15 (51.7)	0.74
Diabetes mellitus	8 (23.5)	6 (20.6)	0.79
Smoking habit	17 (50.0)	19 (65.5)	0.21
Dyslipidemia	5 (14.7)	1 (3.4)	0.20
COPD	2 (5.8)	4 (13.7)	0.40
Peripheral vascular disease	2 (5.8)	1 (3.4)	1.00
Chronic kidney failure	1 (2.9)	0	1.00
Prior stroke	2 (5.8)	3 (10.3)	0.65
Prior CAD	5 (14.7)	6 (20.6)	0.53
Killip classification			0.44
I	28 (82.3)	27 (93.2)	
II	3 (8.8)	1 (3.4)	
III	0	0	
IV	3 (8.8)	1 (3.4)	
Infarction topography			0.54
Anterior	15 (44.1)	8 (27.5)	
Inferior	11 (32.3)	12 (41.3)	
Other locations	8 (23.6)	9 (31.2)	
Angiographic characteristics			0.72
Single vessel	15 (44.1)	15 (51.7)	
Two-vessel	9 (26.4)	8 (27.5)	
Multivessel CAD	10 (29.4)	6 (20.6)	
Significant LV dysfunction	7/31 (22.5)	9/27 (33.3)	0.36

Results expressed as 95%CI or n (%).

COPD: chronic obstructive pulmonary disease; CAD: coronary artery disease; LV: left ventricle.

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