Myocardial infarction and ischaemic stroke in a COVID-19 patient: nothing happens by chance

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A 68-years-old man, affected by arterial hypertension in treatment with angiotensin-receptor blocker (cardesartan 32 mg), was admitted to emergency department for fever and dyspnoea. The molecular swab for SARS-CoV-2 was positive. Chest CT showed bilateral interstitial pneumonia with Chung severity score index 15/20. The laboratory examinations showed: PCR 21 mg/dl, IL-6 17 pg/ml, s-dimer 374 mg/ml, lymphopenia, glycaemia 218 mg/dl, total cholesterol 245 mg/dl. At COVID-19 diagnosis he started the following therapy: Azithromycin 500 mg once a day, Methylprednisolone 20 mg twice a day, Remdesivir 200 mg once a day, Enoxaparin 6000 UI twice a day, Insulin Lispro 6/8/8 UI three times a day, High FlowNasal Cannula (FiO2 45%). No lipid-lowering therapy was prescribed. During the hospitalization, the patient experienced a progressive improvement in clinical and laboratory parameters. On the 28th day, there was a sudden worsening of dyspnoea with evidence of ST-elevation in D1, AVL, V2-V6 leads. A primary percutaneous coronary intervention at COVID-19 HUB hospital (2.9 km away) was required. Because of massive demand for emergency vehicles, the patient was admitted to the Chat Lab 3 h and 23 min later. Due to evidence of critical stenosis of the proximal and intermediate left anterior descending artery, a PTCA with stenting was performed. 12 h later, the patient developed left hemiplegia (NIHSS score: 7). The brain CT revealed an acute right frontal ischaemic lesion; no indication to fibrinolysis was given by the consultant neurologist. Our case report describes the rare concomitance of two thrombotic events in a COVID-19 patient with many cardiovascular risk factors, offering the opportunity to underline the need of their appropriate treatment during the hospitalization for SARS-CoV-2 infection. Moreover, a dedicated treatment pathways should be provided for COVID-19 patients in order to ensure the timely and correct application of the protocols suggested by the international guidelines.
Aims: Myocarditis and pericarditis have been proposed to account for a proportion of diseases. To examine the incidence and prevalence of inflammatory heart disorders reasonable to expect an increasing trend in incidence of this acute inflammatory cardiac injury during SARS-CoV-2 infection. During the COVID-19 pandemic, it is realistic to expect an increased incidence of myocarditis and pericarditis, data suggest a decrease of acute myocarditis was significantly higher in PRECOVID than in the COVID: respectively (4.47 vs. 2.4; annual incidence of pericarditis was not significantly different (4.03 vs. 3.94/100 000; annual incidence of inflammatory heart disease was not significantly different (12.1 vs. 12.4/100 000; P = 0.61). These findings remained similar when QS- and qR complexes were considered at our centre. On admission, all patients underwent 12-lead electrocardiograms (ECGs) were recorded and were classified as STEMI. There was no difference between the two study periods in terms of STEMI patients, thus explaining the higher mortality rate and the increased risk of infarct-related complications observed during the COVID-19 pandemic.

Methods and results: Formal assessment of initial electrocardiograms (ECGs) among STEMI patients during the COVID-19 period is still lacking. We therefore compared pre-hospital ECGs of STEMI patients hospitalized in Italy after the first reported case of COVID-19 on 21 February 2020. We recruited 3230 STEMI patients (1003 of whom were hospitalized during the COVID-19 period). Of the latter, 1481 (49.3%) were classified as STEMI. There was no difference between the two study periods in terms of STEMI patients (78.3% vs. 75.0%; P = 0.22). The annual incidence of acute myocarditis was significantly higher in PRECOVID than in the COVID: respectively (4.47 vs. 2.4; annual incidence of pericarditis was not significantly different (4.03 vs. 3.94/100 000; P = 0.61). These findings remained similar when QS- and qR complexes were considered at our centre. On admission, all patients underwent 12-lead electrocardiograms (ECGs) were recorded and were classified as STEMI. There was no difference between the two study periods in terms of STEMI patients, thus explaining the higher mortality rate and the increased risk of infarct-related complications observed during the COVID-19 pandemic.

Conclusions: COVID-19 is associated with a marked increase in the incidence of myocardial infarction (MI) and pericarditis. A decrease in the incidence of myocarditis was observed in the COVID-19 period compared to the PRECOVID period. The increase in STEMI incidence during the COVID-19 period is likely to be secondary to a reduction in the use of PCI and a delayed presentation of patients with STEMI. However, a marked increase in the incidence of myocardial infarction (MI) and pericarditis was observed during the COVID-19 period. The increase in STEMI incidence during the COVID-19 period is likely to be secondary to a reduction in the use of PCI and a delayed presentation of patients with STEMI.

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659 Figure 2 Critical stenosis on LAD and subcritical stenosis on first and second obtuse marginal arteries.