216 The 'inflammatory perfect storm': a case of COVID-19 pneumonia complicated by pulmonary embolism

Maria Colangelo[1], Lidia Colangelo[2], Paola Paone[1], and Roberto Ceravolo[1]
[1]Ospedale Giovanni Paolo II di Lamezia Terme, Italy, and [2]Juventus Medical Centre, Italy

Aims: The inflammatory 'cytokine storm' that distinguishes COVID-19 pneumonia is associated with a state of systemic hypercoagulability, which leads to thrombotic complications on the venous, arterial, and microvascular side. Indeed, in patients with COVID-19, systemic inflammation, coagulation activation, hypoxemia, and immobilization expose a high risk of pulmonary embolism, which significantly worsens the prognosis of these patients.
Methods and results: In this report, we discuss the case of a 71-year-old female, with no prior medical history, admitted to the emergency department for syncope, dyspnoea, and fever started 48 h earlier. At presentation, ear temperature was 37 °C, oxygen saturation was 96% on oxygen therapy (6 l/min), the patient appeared hypertensive (160/80 mmHg) and tachycardic (114 b.p.m.). Laboratory tests revealed normal white blood cells count (10 000/μl) and increased C reactive protein (5.60 mg/dl), troponin I (0.417 ng/ml), and D-dimer levels (15743 ng/ml). Electrocardiogram showed sinus tachycardia at HR of 120/min, normal atrioventricular conduction time, new onset right bundle branch block, and inverted T waves on DIII. Considering the symptoms, CTPA was performed, revealing massive acute bilateral pulmonary embolism with peripheral ground glass opacities. Those findings were suggestive of COVID-19 pneumonia. Indeed, the patient was positive for SARS-CoV-2 infection, and a diagnosis of COVID-19 pneumonia complicated by pulmonary embolism was made. Treatments included oxygen, subcutaneous low molecular weight heparin (LWMH), and corticosteroids have been administrated according to current international guidelines. Since no haemodynamic instability was observed during hospitalization the patient was discharged on Warfarin therapy for 6 months.
Conclusions: In COVID-19 patients treated in a hospital the incidence of pulmonary embolism (PE) is very high. Patients with COVID-19 infection have respiratory symptoms, which often may not be distinguishable from pulmonary embolism symptoms. So, unexpected respiratory worsening, signs of right ventricular dysfunction on transthoracic echocardiogram, and ECG changes should lead to suspicion of the co-presence of pulmonary embolism. This case report shows how COVID-19 infection can be strongly associated with thrombotic complications. For this reason, the guidelines recommend anticoagulation at standard prophylactic doses in all patients admitted with COVID-19 infection.