Letter to the Editor
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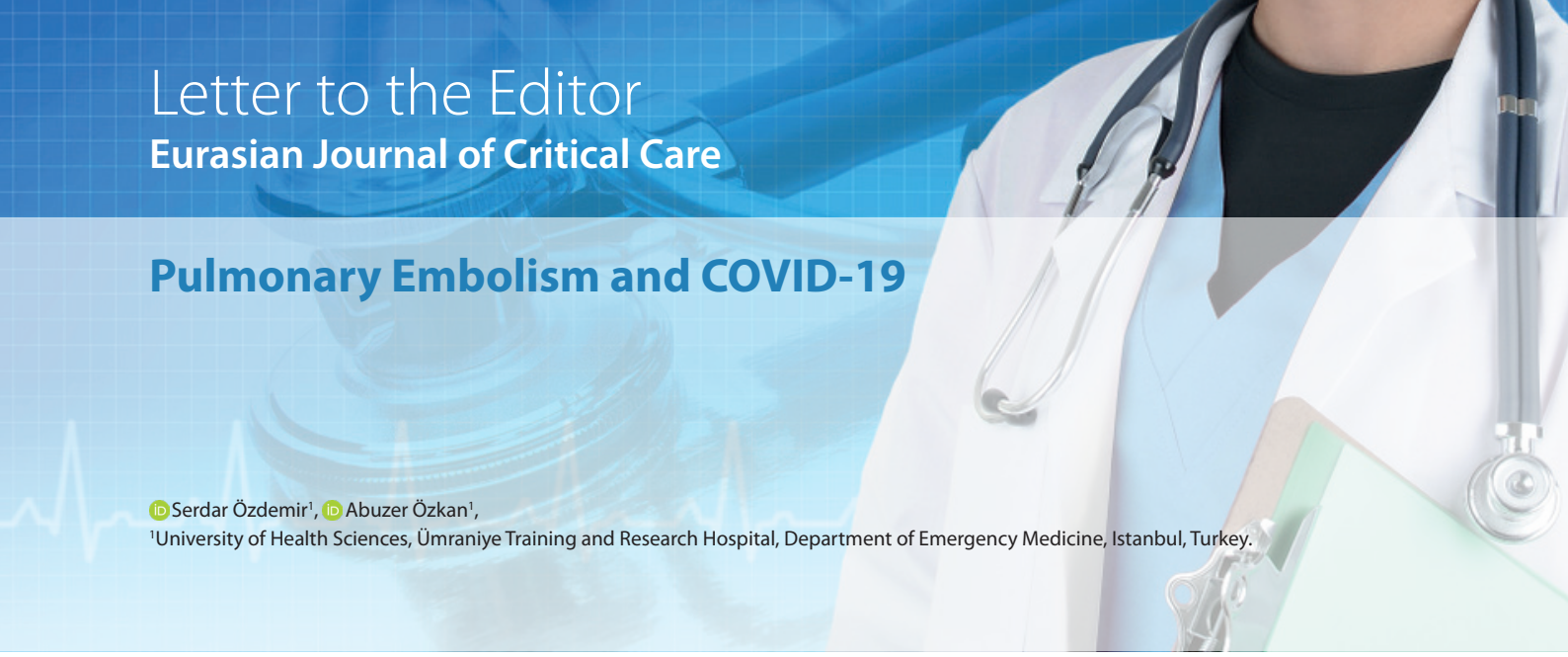

Pulmonary Embolism and COVID-19

Serdar Özdemir[1], Abuzer Özkan[1],
[1]University of Health Sciences, Ümraniye Training and Research Hospital, Department of Emergency Medicine, Istanbul, Turkey.

Dear editor,

We have read the research titled "Analysis of Patients with Pulmonary Thromboembolism Who Received Thrombolytic Therapy in The Emergency Department" prepared by Emektar et al. with great interest[1]. We thank the authors and the editorial board for publishing this successful and informative paper contains data of patients presented on pre-pandemic period. The patient profile has also changed with the spread of SARS-CoV-2 worldwide. We also would like to mention a few important points about mechanism of pulmonary embolism in COVID-19.

Pulmonary embolism is one of the medical emergencies that should be recognized early because of its frequent occurrence, different clinical findings, and most importantly, high mortality rates. In the current literature, the measurement of D-dimer levels, which is one of the fibrin degradation products, has come to the fore in the diagnosis of pulmonary embolism[2]. It is a biomarker used in pulmonary embolism management algorithms. On the other hand, D-dimer is a biomarker used in the management of patients with COVID-19[3]. This is an indication of the fact that thrombotic processes are associated with mortality in COVID-19 patients.

Pulmonary embolism is the most common cause of embolism originating from deep calf veins. In COVID-19, it was observed that deep calf vein thrombosis was not accompanied by frequent pulmonary embolism in patients. To explain this, the lung tissues of patients with respiratory failure with COVID-19 were examined postmortem. In these post-mortem studies, diffuse alveolar damage to mononuclear cells was observed in fibrin clusters in lung tissue. Other findings were diffuse endothelial inflammation in the lungs and direct viral infection of endothelial cells. The researchers reported these findings as fibrin plugs formed in the pulmonary microcirculation caused by the inflammatory process[4]. This was a pathogenesis that clinicians were not accustomed to in familiar pulmonary infections. This clinical condition was named as microvascular COVID-19 lung vessels obstructive thromboinflammatory syndrome. The long name of the syndrome has been shortened to MicroCLOTS. Although blood gas findings such as arterio-alveolar gradient indicate the diagnosis of pulmonary embolism in patients with severe respiratory failure, the absence of clots in computed tomography scans is a finding that supports the MicroCLOTS theory[5]. Another terminology for this pathogenesis was primary pulmonary thrombus[6].

As a result, understanding the pathophysiology in COVID-19 will positively affect the treatment processes.

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Corresponding Author: Abuzer Özkan **e-mail:** ebuzerozkan@gmail.com
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ORCID IDs

Serdar ÖZDEMİR: orcid.org/0000-0002-6186-6110

Abuzer ÖZKAN: orcid.org/0000-0003-4284-0086