

**Bivalirudin/norepinephrine****S****Lack of efficacy and off label use: case report**

A 65-year-old woman exhibited a lack of efficacy while being treated with norepinephrine for haemodynamic instability. She also received off-label bivalirudin for maintenance anticoagulation during venovenous extracorporeal membrane oxygenation (ECMO) [not all routes stated].

The woman was hospitalised in the USA with hypoxaemic and hypercarbic respiratory failure secondary to COVID-19. She had a significant history of hypertension and hyperlipidaemia. She was intubated due to progressed hypoxaemia on day 2, which was complicated by severe subcutaneous emphysema and pneumomediastinum. On day 3, she was then shifted to another hospital for ECMO treatment. Due to poor respiratory compliance, she was on continuous mechanical ventilation. She also had haemodynamic instability and was on norepinephrine 0.05 µg/kg/min. However, haemodynamically instability persisted indicating norepinephrine lack of efficacy. On Day 3, venovenous ECMO was initiated. A drainage cannula was placed in the right atrium via the right common femoral vein and the cannula was placed in the superior vena cava via the right internal jugular vein. Within 72h, her emphysema improved. Immediately after the cannula placement, heparin [unfractionated heparin] was administered. During the ECMO course, she received off-label bivalirudin IV infusion as maintenance anticoagulation therapy. At therapeutic activated partial thromboplastin time (aPTT), the bivalirudin dose was 0.15–0.25 mg/kg/h. Two plateaus were observed in her dosing, with the first portion of her ECMO course requiring a dose of 0.25 mg/kg/h and another portion after diagnosis of *Enterococcus* bacteraemia, which required 0.16 mg/kg/h dose for maintaining aPTT levels. On day 5, aspirin was started. Tracheostomy was performed on day 25. She was weaned and decannulated from ECMO on day 30. Bivalirudin infusion was discontinued and she received heparin for the prophylaxis of deep vein thrombosis. Until day 35, she was on mechanical ventilation. Finally, on day 37, her tracheostomy was decannulated without any complications and she was discharged on day 47.

Seelhammer TG, et al. Bivalirudin for Maintenance Anticoagulation During Venovenous Extracorporeal Membrane Oxygenation for COVID-19. *Journal of Cardiothoracic and Vascular Anesthesia* 35: 1149-1153, No. 4, Apr 2021. Available from: URL: <http://doi.org/10.1053/j.jvca.2020.06.059> 803555649