

COVID-19: The Longest Ventilated Patient

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Dear Editor,

The case below is interesting in that it highlights the tiered escalation of treatment of a SARS-CoV 2 patient in the first wave of the pandemic in Ireland. Hopefully, through retrospective analysis of this case, some readers may learn valuable clinical insights, as at the time of writing we sit on the eve of an unprecedented surge in hospital cases.

A 76-year-old female presented with acute coronary syndrome. She became febrile 36 hours post admission but was otherwise asymptomatic. A SARS-CoV-2 swab was sent 2 days post presentation which returned positive. It was subsequently identified that she was a close contact of a COVID-19 community cluster and had been incubating the disease at presentation. Primary PCI was carried out 5 days after initial presentation. This was complicated by acute limb ischaemia, requiring left leg embolectomy and endarterectomy.

On day 9, the patient started to develop respiratory failure with increasing oxygen requirements and new ground glass opacities on chest imaging. Following further clinical deterioration, the patient met criteria for intubation and ventilation.

On day 18 with a significant rise in ferritin, the diagnosis of SARS-CoV-2 related secondary hemophagocytic lymphohistiocytosis (sHLH) was made. Tinzaparin, tocilizumab and steroids were commenced as per national recommendations. With persistent hypoxia the patient was began a prone ventilation regimen for 12hrs per day.

After 37 days on mechanical ventilation, percutaneous tracheostomy formation was carried out in the ICU setting. 79 days post intubation the patient was weaned off mechanical ventilation.

This case is interesting in terms of highlighting the multiple issues involved in caring for patients with SARS-CoV-2. It is understood that this patient may be the longest SARS-CoV-2 patient in Ireland successfully weaned from a ventilator.

VTE thromboprophylaxis in the SARS-CoV-2 patient, has received increasing attention of late, with evidence suggesting an underlying systemic endotheliitis driving the constellation of symptoms associated with SARS-CoV-2. It is speculated that SARS-CoV-2 infection was a precipitant of the initial coronary occlusion which caused the patient to present due to endothelial inflammation resulting in destabilisation of a pre-existing coronary plaque.

This patient developed a secondary hemophagocytic lymphohistiocytosis (sHLC). There are many recent studies examining the hyperinflammatory pathways associated with SARS-Cov-2 infection, including the RECOVERY trial.¹ This suggested patient who received dexamethasone 6mg once daily for up to 10 days had a reduced 28-day mortality if they required ventilation or oxygen therapy. (1) In the ventilated patient, ARDs becomes a hallmark of SARS-CoV-2 infection and proning has become the emerging trend.²

Interleukin-6 seems to play an important role in the SARS-CoV-2 inflammatory response. This is where treatment with tocilizumab comes into play. The inhibition of the IL-6 inflammatory pathway may continue to be of major significance with recent studies showing promising reductions in in-patient mortality for those treated with sarilumab vs. standard care.

In conclusion, this case demonstrates the multisystemic endothelial inflammatory response elicited by severe SARS-CoV-2 infection and the constellation of symptoms and complications that my present. Active surveillance and early recognition of these complications followed by early implementation of appropriate therapies aided the above patient to recover quite remarkably.

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