

SPECIAL SUPPLEMENT
Sedation in Critically-Ill
COVID-19 Patients

20 Lessons from 2020

Twenty Lessons from 2020: With a Focus on the ICU Perspective, *JL Vincent, N. Juffermans*

Is Videolaryngoscopy the New Gold Standard for Intubation Following the COVID-19 Crisis? *A. De Jong, Y. Aarab, S. Jaber*

Prioritisation: A Physicians' Problem? *A. Michalesen, K. Rusinová*

How the Pandemic Changed Telemedicine, *V. Herasevich, J. Clain, B. Pickering*

Rethinking Critical Care - Use and Challenges of Artificial Intelligence, *L. Martin, A. Peine, G. Marx et al.*

Prone Position in Awake, Non-Intubated Patients with ARDS: From Physiology to the Bedside, *O. Perez-Neito, E. Zamarron-Lopez, R. Soriano-Orozco et al.*

Cardiorespiratory Compromise in the Perioperative Environment - Prediction, Quality, Analytics and AI, *A. Khanna, P. Mathur, J. Cywinski et al.*

Mouth Care Challenges and the Use of the COVID-19 Oral Grading System, *J. Allen, G. Rossano, J. McRae.*



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Twenty Lessons from 2020: With a Focus on the ICU Perspective

2020 has been an unusual year. As we begin 2021, it is important for intensivists to look back over what has happened and see whether lessons can be learned from our combined experiences.

The year 2020 has been unusual in so many ways and as we start a new year, it is interesting and important as intensivists to look back and reflect on what has happened. Populations worldwide have experienced lockdowns, confinement and quarantine, and healthcare systems have been challenged globally by surges in the number of patients requiring hospitalisation and intensive care. Importantly, although faced by the same threat, countries vary hugely in terms of facilities available for testing, protective equipment, medical equipment and staffing, and hospital and ICU bed availability. Nevertheless, lessons can be learned from our combined experiences to help improve ICU care in all parts of the world.

1. Informing government and policymakers about ICU occupancy and consequences is paramount

In countries where leaders have negated the scope and impact of COVID-19, measures to limit the spread of the virus were not taken or were taken too late, resulting in higher mortality rates. Lack of awareness or lack of information may have contributed to this situation. Intensivists should be part of national

outbreak management teams to inform policymakers about ICU capacity and evaluate optimal population health and safety measures, including social distancing.

2. We could have prepared better, earlier
 Many hospitals had problems with basic supplies of protective equipment to ensure staff safety. Sufficient stocks should have been available and potential alternative supply chains already identified to be actioned before the issue became a problem.

3. Better training and intensivist support should be available for non-ICU staff
 Plans to convert beds from other wards into temporary ICUs were often in place, but many of the nurses and doctors who volunteered to care for patients on these units had little experience of intensive care and there were few strategies in place to rapidly train these staff members in the necessary basics of ICU care. A pyramid approach should be in place such that ICU doctors supervise non-ICU doctors and ICU nurses supervise non-ICU nurses.

4. COVID-19 is a form of viral sepsis
 COVID-19 is a condition in which a viral infection causes organ failure associated

with a dysregulated host response, i.e., COVID-19 is sepsis. This highlights that, although most commonly associated with bacterial infection, sepsis can also be caused by viruses, fungi, or parasites. The realisation that patients with COVID-19 have sepsis has important implications for the ways in which we treat them.

5. Pharmacological management should be individualised and considered in terms of the dual phases of viral replication and inadequate host response

As in other areas of critical care, one size fits all treatment strategies are inadequate in COVID-19 and treatments should rather be personalised. It is important to understand the mode of action of proposed therapies for COVID-19 and use them appropriately. For example, anti-viral drugs, in particular the use of remdesivir, have given disappointing results in critically ill patients in whom the key phase of viral replication is less important than the dysregulated host response. These patients may rather benefit from immunomodulatory agents. The administration of dexamethasone is about the only treatment that has shown effectiveness in severely ill patients. Biomarkers may help to identify the

right treatment for the right patient at the right time. However, further research is necessary to identify which biomarkers are optimal.

6. COVID-19 is a thrombotic coagulopathy

As our understanding of the pathophysiology of COVID-19 improved, we realised that it is associated with a thrombotic coagulopathy state with high rates of venous thromboembolism and arterial thrombosis. As such, we have moved towards increasing the level of anticoagulant therapy to patients with severe COVID-19.

7. Acute respiratory failure is not always ARDS

COVID-19 respiratory failure was initially widely considered as ARDS in all patients and treated as such. There have been discussions about type 1 and type 2 respiratory failure in severe COVID-19, but the type 1 may just represent an earlier stage of the disease. ARDS associated with COVID-19 is not very different from other forms. Discussions about pulmonary compliance were largely superfluous, because we need to individualise patient management rather than use the same settings for everyone.

8. The type of respiratory support will vary for different patients and at different stages of the disease

There is no need to intubate the trachea when non-invasive support is sufficient. Continuous positive airway pressure (CPAP) can be adequate in some patients and different systems with, for example, helmets etc., have been successfully implemented. This approach helps save mechanical ventilators for those patients who cannot be managed non-invasively. We have also appreciated that proning in COVID-19 patients receiving mechanical ventilation is important, despite the high workload required for

this technique, as it at least improves oxygenation. We learned it might also be of value in some patients receiving non-invasive ventilation.

9. COVID-19 can present with severe cardiovascular syndromes

The presenting symptoms of COVID-19 need not be respiratory. In addition to an increased risk of myocardial infarction, COVID-19 can present with life-threatening arrhythmias. Although rare, myocarditis with heart failure and severe cardiogenic shock can occur. Following the first wave, a novel multiple inflammatory syndrome was identified, typically occurring several weeks after initial infection. Mostly children seem to be

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affected, but (young) adults can also develop this syndrome, which responds well to corticosteroids. It seems likely that cardiovascular complications in COVID-19 have hitherto been underreported and we need to be aware of novel syndromic presentations of COVID-19.

10. Tissue perfusion should be optimised

The importance of tissue perfusion in COVID-19 patients has sometimes been overlooked. Although shock is usually relatively mild in patients with COVID-19, it can contribute to the development of multiple organ failure. The pathophysiology can involve the four phenotypes: hypovolaemic, cardiogenic (myocardial injury, right heart failure due to increased afterload), obstructive (pulmonary embolism), and distributive

(exaggerated host response). Indeed, early in the pandemic, diuretics were often prescribed on the basis of severe lung oedema, but resultant secondary hypovolaemia may have impaired tissue perfusion. Maintenance of an optimal fluid status is of paramount importance in all patients, including those with COVID-19.

11. Clinical trials could have been better organised

With the rush to try and identify any treatment that was effective against SARS-CoV-2, multiple small, single-centre clinical trials were started on a multitude of different potential therapeutic interventions. These effectively limited enrolment of patients into other larger studies, and often struggled to include enough patients, therefore, preventing useful conclusions being drawn from their results. Larger, more carefully considered international trials, such as the Recovery, Solidarity and Remap-CAP platforms, would have provided more valuable data.

12. The hydroxychloroquine story caused considerable harm

The initial data in favour of hydroxychloroquine use were not very convincing, and yet because everyone was eager to have an effective treatment, because of the considerable media coverage, and because the drug was promoted by several world leaders, many patients and their relatives wanted to be treated with it. In addition to the fact that it did not work, this demand prevented the inclusion of many patients in clinical trials as they could not be randomised. Importantly, pandemics should not be used as an excuse to condone reduced standards of scientific research.

13. There is a need to determine futility, especially when resources are limited

If resources are exceeded, selecting which patients should be admitted to the ICU or to receive organ support should not be

based on a lottery or a 'first come, first served' basis as was done in some centres. We should not admit patients to the ICU or submit them to organ support interventions if they are going to die regardless of our efforts. This is not only a futile and unkind action for the patient and his/her family, but increases costs for society as a whole, limiting the availability of these resources for those who could truly benefit. The high mortality rates with such an approach also have a negative impact on the morale of the personnel. Criteria for ICU admission and use of life-support therapies should be established and used on all ICUs at all times, not just during a pandemic, to ensure that only patients who will benefit are included.

14. Families are important and good communication is key

Families have sometimes been kept away from their loved ones for safety reasons, creating anxiety and loneliness for them and the patient. Taking time to explain how the patient is, is vitally important, although can be difficult, especially on a hectic ICU. Providing some form of regular contact via video link should be considered a minimum for both patient and family.

15. Good teamwork and support are crucial

Regular team debriefings are important to provide positive feedback and to acknowledge the input from each team member. It is also important to provide reassurance that when resources are stretched, it may not be possible to treat patients to the high standards normally demanded, and that doing everything we can has to be enough.

16. Psychological support for the personnel is essential

Adequate, early psychological support is essential and must be available for all medical and paramedical teams because the risk of burnout is real and staff

wellbeing crucial for continued efficient functioning. Psychological support should be actively encouraged and not, as is still often the case, seen as a sign of weakness. In the initial surge of COVID-19 cases, the importance of this support was often overlooked.

17. Follow-up clinics should be implemented.

Increasingly, long-term sequelae of COVID-19 are being recognised, potentially involving multiple organs. As such, follow-up services and rehabilitation programmes should be provided to detect and manage such problems.

18. Telemedicine has many advantages in a pandemic

We have all become much more familiar with telemedicine over the last year. Online meetings with colleagues to discuss the very latest treatments and data, online training programmes for staff, online consultations and monitoring of patients at home, and video links so that relatives can see and talk to (where possible) their loved one in hospital, are just some examples of how telemedicine has been embraced and become an important communication tool in the hospital setting.

19. Limiting the impact on non-COVID patients is important

The negative impact of this pandemic on non-COVID patients will not be fully apparent for some months or even years. Many hospitals had to cancel routine procedures to be able to provide enough beds for their COVID-19 patients, and people were often afraid to attend hospitals or their general practitioner for fear of adding undue burden to the system or for fear of catching the disease. Patients whose treatments or follow-ups have been cancelled or postponed, patients with life-modifying diseases who have not been diagnosed, individuals with impaired mental health as a result of

lockdown, fear and/or loneliness - these are just some examples of how COVID-19 has impacted even those who have not been infected.

20. We need to learn from our mistakes and be better prepared for similar pandemics in the future

The scope of COVID-19 caught us all by surprise. Yet, given that viral mutation is part of nature, novel viral pandemics are to be expected in the future. Reflection on the past year is needed to develop plans for improved preparation, at all organisational levels. ■