Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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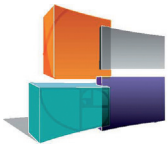

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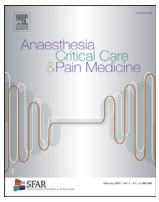

Letter to the Editor

How to resume elective surgery in light of COVID-19 post-pandemic propofol shortage: The common concern of anaesthesists and surgeons

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The coronavirus disease 2019 (COVID-19) pandemic has stressed health-system capacity and human resources and is about to decimate the pharmaceutical supply chain of injectable anaesthetic drugs, which has already been under severe strain for decades. As most countries are now emerging from their lockdowns, one of the main challenge is to reboot the entire healthcare system and the surgical care delivery in a detrimental context [1].

1. COVID-19 and anaesthetic drugs consumption in intensive care units (ICUs)

Many patients infected by SARS-CoV-2 have required hospitalisation in the ICUs and prolonged mechanical ventilation, leading to a rapid, massive, and worldwide unpredictable demand for sedative and neuromuscular blocking drugs, which are better known for their use in the operating theatre. The supplies of routine intravenous anaesthetic drugs (curare, propofol and midazolam), administered at a far higher rate than usual, have reached critically low levels in Europe and in the United States in a ripple effect, which ledseveral medications to be placed on the shortage list.

2. COVID-19 and postponement/cancellation of elective surgeries

In order to manage COVID-19 patients, referral healthcare centres have restructured their medical and surgical services. Prioritisation and patient triage were based on disease risk stratification and safety-driven algorithms according to the advice of expert committees. Hence, difficult ethical decisions regarding patients' care have been made according to the available resources. Non-urgent (elective) surgical procedures have been curtailed and postponed preventing nosocomial transmission of COVID-19 and to reallocate health care workers to specialise COVID-19 units. The impacts of these restrictions and prioritisation were not solely limited to "low-priority" or benign diseases but also affected oncological procedures. Therefore, major concerns regarding the potential impact of these measures on patient health and prognosis have been raised. Exact worldwide cancellations in elective surgery are currently unknown but a recent projection estimated that 28 millions of operations would have been cancelled or postponed over the 3-month COVID-19 crisis [2].

3. COVID-19 policies and propofol shortage

The shortage of some medications has become a routine international concern despite being underreported and has impacted patient care over the last two decades. Among the drugs most frequently affected by shortages, sterile injectable propofol is of the utmost concern. The reasons for propofol shortage are not only a straightforward consequence of the increasing number of patients requiring mechanical ventilation but the result of multilevel disruptions of the drug supply chain due to lockdown, plants closure and travel restrictions.

As an illustration of the seriousness of the situation, the French government decided on the 27th of April to handle the supply and the redistribution to all national healthcare centres of five medications (Official Journal n° 2020-466 Art 12-4-1) of critical importance for ICUs and general anaesthesia: midazolam, propofol, atracurium, cisatracurium, and rocuronium.

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4. How to reboot elective surgery in this context of propofol shortage: Make loco-regional anaesthesia great again

The recent work of NIHR Global Health Research Unit outlined that if the global healthcare system increased routine surgical volume by 20% post-pandemic, it would take a median 45 weeks to clear the backlog of operations resulting from COVID-19 disruption [2]. From a surgical perspective, beyond prioritisation of patients based on emergency status, we need not only to reconsider techniques and approaches that should be used, but also to work upstream on the quality of medical care and secure the surgical indications, accounting that more than one-tenth of procedures in yearly overall medical care would not be needed [3].

The breaking news about anaesthetic drug shortages and the need for regulation should alert anaesthesiologists to reconsider and balance all anaesthetic alternatives. Although epidemiological data are scarce, loco-regional anaesthesia remains globally under-utilised despite its benefit [4]. However, the use of loco-regional anaesthesia should be prioritised in this post-pandemic era to counterweight propofol shortage and delays in surgical interventions, as local anaesthetics were much less prone to be in short supply. Propofol-based total intravenous anaesthesia has been reported to be particularly adjusted to ambulatory surgery setting, but loco-regional anaesthesia should be used as much as possible as an optimised technique [5]. Compared to general anaesthesia, regional anaesthesia limits airway manipulations and could reduce the risk of nosocomial transmission from an asymptomatic undiagnosed COVID-19 patient to the surgical operating theatre team via aerosolised viral particles.

Emerging COVID-19 surgical and anaesthesiology guidelines were undoubtedly necessary but written under pressure with very limited cross considerations between specialties. They are intended to identify patients who absolutely need to be treated within a given time frame, those who can tolerate delayed treatment, and those whose treatment can be postponed until the situation has normalised. Unfortunately, the situation seems much more complex and further, more in-depth work is needed to modify our approach in the following months, especially with regard to functional diseases [2]. Rather than a binary approach, we likely need to analyse treatment options within the spectrum of their "consumption rate" in terms of perioperative drugs, intraoperative time, workforce, visits to the hospital, exposure/need for COVID-19 testing and settings, home-based, office-based, outpatient or inpatient surgery, regardless of the cost.

Ethical statement

Not applicable.

Disclosure of interest

The authors declare that they have no competing interest.

References

[1] Pourrat X, Huon JF, Laffon M, Allenet B, Roux-Marson C. Implementing clinical pharmacy services in France: One of the key points to minimise the effect of the shortage of pharmaceutical products in anaesthesia or intensive care units? Anaesth Crit Care Pain Med 2020. http://dx.doi.org/10.1016/j.accpm.2020.04.012.
[2] CovidSurg Collaborative, Nepogodiev D, Bhangu A. Elective surgery cancellations due to the COVID-19 pandemic: global predictive modelling to inform surgical recovery plans: Elective surgery during the SARS-CoV-2 pandemic. Br J Surg 2020. http://dx.doi.org/10.1002/bjs.11746.
[3] Lyu H, Xu T, Brotman D, Mayer-Blackwell B, Cooper M, Daniel M, et al. Overtreatment in the United States. PLoS ONE 2017;12:e0181970. http://dx.doi.org/10.1371/journal.pone.0181970.
[4] Cozowicz C, Poeran J, Memtsoudis SG. Epidemiology, trends, and disparities in regional anaesthesia for orthopaedic surgery. British Journal of Anaesthesia 2015;115:ii57–67. http://dx.doi.org/10.1093/bja/aev381.
[5] Schraag S, Pradelli L, Alsaleh AJO, Bellone M, Ghetti G, Chung TL, et al. Propofol vs. inhalational agents to maintain general anaesthesia in ambulatory and in-patient surgery: a systematic review and meta-analysis. BMC Anesthesiol 2018;18. http://dx.doi.org/10.1186/s12871-018-0632-3.