Journal of PeriAnesthesia Nursing 37 (2022) 151–152

Contents lists available at ScienceDirect

Journal of PeriAnesthesia Nursing

journal homepage: www.jopan.org

The Back Page

The PACU as an Intensive Care Unit Before, During and After the COVID-19 Pandemic

Having being employed as anesthesiology department nurses for many years, we still remember our feelings of relief in case, at the beginning of our shift, we were informed that there were no ICU overflow patients in the post-anesthesia care unit (PACU). These feelings were attributed to two reasons. First, caring for ICU overflow patients had been combined with much higher workload in our minds, which made us feel nervous, especially in case many postoperative patients were expected to be admitted. Second, even if we had plenty of time to devote to ICU overflow patients, we always had the sense that the care we provided did not reach the standard of care they would receive in the ICU. It should be mentioned that the presence of these patients in the PACU was rather common for the majority of shifts.

During the last twenty years, numerous reports from many countries have been published about the use of PACU as a temporary admission location for ICU overflow patients.[1-4] Although other hospital settings have also been employed for the care of the critically ill due to the worldwide shortage of ICU beds, such as the Emergency Department (ED) and surgical/medical wards, the PACU could be suggested as the first choice.[1] The main reason is possibly the competence of PACU nurses,[5] thanks to their long experience in the management of patients who are hemodynamically unstable, need an artificial airway, or receive many drugs intravenously. In addition, the PACU is generally designed as open floor, as is the ICU, which allows the simultaneous observation of a large number of patients.[6] Finally, monitors, ventilators, infusion pumps and other devices, which are necessary for the integrated care of the critically ill, are usually available. However, appropriateness of PACUs for the care of ICU overflow patients has been challenged, since these are not designed, staffed or equipped to serve as ICUs. Moreover, PACU nurses may not be appropriately trained for fully meeting the demands of critically ill patients, e.g. in the administration of parenteral nutrition or the weaning process of patients from ventilators,[2,7] which means that the care provided to this patient group is not expected to be optimal.[1]

The appropriateness of PACU use for the admission and care of ICU overflow patients should be determined according to its effects on three groups: ICU overflow patients, postoperative patients regularly admitted to the PACU, and nursing personnel employed in the PACU. With regard to the first group, do the outcomes of ICU overflow patients admitted to the PACU differ compared to those of patients treated in the ICU? Unfortunately, relevant empirical data are currently very limited. Delayed ICU admission and prolonged waiting in the PACU have been associated with significantly higher ICU mortality for critically ill postoperative patients.[8] Similarly, for critically ill patients who stayed in the ED, every additional hour of stay increased their probability of death in the ICU by 1%.[9] Although the ED differs much from the PACU, this finding might indicate that suboptimal care provided outside the ICU can be followed by worse outcomes for these patients.

ICU overflow patients are generally characterized by higher nursing care requirements than postoperative ones. Therefore, with regard to PACU nursing personnel, their workload significantly increased in the presence of ICU overflow patients during the evening and night shift, which resulted to increases in total care time of 11.9% and 32.2% respectively.[2] Moreover, PACU nurses have reported difficulty in trying to manage both PACU and ICU overflow patients, which they have described as struggling with dual focus; they have further reported a sense of giving less than the best care, lack of specialized knowledge, and confusion about treatment prioritization, documentation, and legitimate privacy.[10] In this context, feelings of anxiety and lack of competence are expected for PACU nurses when they care for ICU overflow patients.

With regard to postoperative patients, their care needs can be neglected due to the large amount of time needed for covering those of ICU overflow patients. In a recent study,[11] PACU personnel reported that the prevalence and volume of missed nursing care for postoperative patients were significantly higher in case even one ICU overflow patient was present. Of importance, the most common missed nursing care activities included “drug preparation, administration and assessment of effectiveness”, “patient surveillance and assessment”, and “care associated with pain”, which can be followed by severe adverse consequences for patients after anesthesia and surgery.

The discussion about PACU use as admission location for ICU overflow patients has become dramatically topical in the era of COVID-19 pandemic, which has led to a global outbreak of respiratory distress and an unprecedented need for mechanical ventilation. As a result, there have been many reports about the creation of new, temporary ICU beds from the existing PACU ones, which are available since elective operations have been cancelled as part of the surge response planning.[12-14] These reports have focused on the competence and training needs of human resources, along with issues of equipment availability and PACU transformation to serve as an ICU, such as adapting airflow and pressure systems, construction of isolation rooms etc. Unfortunately, there is a dearth of evidence about the outcomes of COVID-19, critically ill patients being admitted to the former PACU beds for long-term care, as well as about the outcomes of

Conflict of interest: None to report.

https://doi.org/10.1016/j.jopan.2021.08.005
1089-9472/© 2021 American Society of PeriAnesthesia Nurses. Published by Elsevier Inc. All rights reserved.

emergency surgery patients when PACU nurses have to simultaneously care for a considerable number of COVID-19 patients. Likewise, no studies could be found about the psychological effects of the COVID-19 pandemic on PACU nurses. Yet, it is worth-noticing that ICU nursing personnel have reported a high prevalence of depression, insomnia and post-traumatic stress disorder during the COVID-19 pandemic.[15] Thus, it seems plausible that the mental health burden of PACU nurses, who are not trained and less used in the care of critically ill patients, could be even higher.

Of course, nobody would object that, as long as the COVID-19 pandemic lasts, priority should be given to the patients who need intensive care. Therefore, the present focus on how optimal care of ICU overflow patients could be achieved in the PACU, instead of whether the PACU should be used for their care, seems to be completely justified. In this context, PACU nurses are called to improve their competence, maintain high-quality practice and ensure safety for both postoperative and ICU overflow patients, possibly through the provision of formal critical care education and training.[6] However, a serious risk should not be overlooked. The fact that the increased demand for ICU care due to the COVID-19 pandemic can, to a more or less satisfactory degree, be covered by the existing hospital beds should not lead to the false sense that no more ICU beds are needed on a regular basis in the healthcare systems of the Western countries.

The reasons why we need more ICU beds are not new.[16] Today, people live longer, thus more comorbidities and higher frailty are expected for more patients. Moreover, the development of new treatments is followed by a higher number of patients being eligible for ICU admission, including those previously considered to be “too well” or “too sick” to benefit. Besides them, continuous admission of critically ill patients in hospital settings other than the ICU could possibly constitute the best reason. Availability of more ICU beds will prevent admission delays, allow timely provision of appropriate care, and more critically ill patients will be treated by the personnel and equipment that are most likely to improve their outcomes. At the same time, PACU nurses will have the opportunity to focus on the best possible outcomes of postoperative patients.

References

1. Ziser A, Alkobi M, Markovits R, Rozenberg B. The postanesthesia care unit as a temporary admission location due to intensive care and ward overflow. *Br J Anaesth*. 2002;88:577–579.
2. Kiekkas P, Poulopoulou M, Papahatzi A, Androutsopoulou C, Maliouki M, Prinou A. Workload of postanaesthesia care unit nurses and intensive care overflow. *Br J Nurs*. 2005;14:434–438. https://doi.org/10.12968/bjon.2005.14.8.17935.
3. Saastamoinen P, Piispa M, Niskanen MM. Use of postanesthesia care unit for purposes other than postanesthesia observation. *J Perianesth Nurs*. 2007;22:102–107. https://doi.org/10.1016/j.jopan.2007.01.001.
4. Kastrup M, Seeling M, Barthel S, et al. Effects of intensivist coverage in a post-anaesthesia care unit on surgical patients' case mix and characteristics of the intensive care unit. *Crit Care*. 2012;16:R126. https://doi.org/10.1186/cc11428.
5. Odom-Forren J. ICU overflow in the PACU. *J Perianesth Nurs*. 2014;29:81–82. https://doi.org/10.1016/j.jopan.2014.02.001.
6. Tan Z, Phoon PHY, Tien CJ, Katijo J, Ng SY, Goh MH. Practical considerations for converting operating rooms and post-anaesthesia care units into intensive care units in the COVID-19 pandemic - experience from a large Singapore tertiary hospital. *Ann Acad Med Singap*. 2020;49:1009–1012. https://doi.org/10.47102/annals-acadmedsg.2020220.
7. Mamaril M. The official ASPAN position: ICU overflow patients in the PACU. *J Perianesth Nurs*. 2001;16:274–277.
8. Bing-Hua YU. Delayed admission to intensive care unit for critically surgical patients is associated with increased mortality. *Am J Surg*. 2014;208:268–274. https://doi.org/10.1016/j.amjsurg.2013.08.044.
9. Oliveira EG, Garcia PC, Filho CMC, de Souza Nogueira L. The influence of delayed admission to intensive care unit on mortality and nursing workload: A cohort study. *Nurs Crit Care*. 2019;24:381–386. https://doi.org/10.1111/nicc.12402.
10. White C, Pesut B, Rush KL. Intensive care unit patients in the postanesthesia care unit: A case study exploring nurses' experiences. *J Perianesth Nurs*. 2014;29:129–137. https://doi.org/10.1016/j.jopan.2013.05.014.
11. Kiekkas P, Tsekoura V, Fligou F, Tzenalis A, Michalopoulos E, Voyagis G. Missed nursing care in the postanesthesia care unit: Cross-sectional study. *J Perianesth Nurs*. 2021;36:232–237. https://doi.org/10.1016/j.jopan.2020.10.009.
12. Lefrant J-Y, Fischer M-O, Potier H, et al. A national healthcare response to intensive care bed requirements during the COVID-19 outbreak in France. *Anaesth Crit Care Pain Med*. 2020;39:709–715. https://doi.org/10.1016/j.accpm.2020.09.007.
13. Peters AW, Chawla KS, Turnbull ZA. Transforming ORs into ICUs. *N Engl J Med*. 2020;382:e52. https://doi.org/10.1056/NEJMc2010853.
14. Jarzebowski M, Curran T, Dorsey M, et al. Creating an intensive care unit from a postanesthesia care unit for the COVID-19 surge at the Veterans Affairs Ann Arbor Healthcare System. *Fed Pract*. 2020;37:348–353. https://doi.org/10.12788/fp.0020.
15. Ezzat A, Li Y, Holt J, Komorowski M. The global mental health burden of COVID-19 on critical care staff. *Br J Nurs*. 2021;30:634–642. https://doi.org/10.12968/bjon.2021.30.11.634.
16. de Lange DW, Soares M, Pilcher D. ICU beds: Less is more? No. *Intensive Care Med*.. 2020;46:1597–1599. https://doi.org/10.1007/s00134-020-06089-0.

Panagiotis Kiekkas, PhD, RN*
Anastasios Tzenalis, PhD, RN
Department of Nursing, University of Patras, Patras, Greece

*Address correspondence to Panagiotis Kiekkas, Department of Nursing, University of Patras, 76 Stratigou Konstantinopoulou Str., Patras, Greece, 263-31
E-mail address: kiekkpan@otenet.gr (P. Kiekkas).