Med Intensiva. 2018;42(8):461–462

medicina intensiva

http://www.medintensiva.org/en/

EDITORIAL

Intensive medicine services. How to add value to the surgical process?☆

Servicios de medicina intensiva. ¿Cómo aportar valor al proceso quirúrgico?

M.C. Martín Delgado[a,*], F. Gordo Vidal[b]

[a] *Servicio de Medicina Intensiva, Hospital Universitario de Torrejón, Torrejón de Ardoz, Madrid, Spain*
[b] *Servicio de Medicina Intensiva, Hospital Universitario del Henares, Coslada, Madrid, Spain*

Millions of surgical operations involving different levels of risk are performed each year throughout the world.[1] Ten percent of these operations imply a high risk of complications, representing 80% of all postoperative deaths, or three million fatalities each year. Furthermore, many survivors discharged from hospital experience adverse events that leave functional sequelae and shorten long-term survival.

The demographic data of surgical patients show them to be progressively older and with increased comorbidities – a situation that can have a significant negative impact upon the surgical outcomes.[2]

Quality postoperative care, understood as a global process, is essential in order to improve the surgical outcomes. It includes adequate preoperative evaluation, optimization of coexisting medical disease, clinical practice referred to the surgical procedure, surgical checklists, advanced hemodynamic monitoring during surgery, the management of acute pain, early admission to the Intensive Care Unit (ICU) in high risk cases, effective monitoring of vital signs after conventional hospital discharge, rapid response teams for dealing with situations of clinical deterioration, adequate rehabilitation and the joint planning of hospital discharge with primary care. Data recording and the auditing of outcomes are key elements for improving quality.[3]

The European Surgical Outcomes Study (EuSOS), an international initiative conducted in 28 European countries with the participation of 498 hospitals and 46,539 patients with the purpose of assessing the outcomes of non-cardiac surgery in Europe, recorded a higher than expected mortality rate (4%). In this study only 5% of the patients were admitted to the ICU on a scheduled or elective basis. Emergency admission to the ICU was associated to greater mortality than elective admission. Surprisingly, most of the patients that died (73%) were never admitted to the ICU after surgery, and of those who were admitted to the ICU, 43% died after being discharged to the hospital ward. These findings suggest that there is a deficient assignment of critical care resources, as well as failure to rescue surgical patients that suffer worsening in the ward.[4]

In this number of Medicina Intensiva, de Nadal et al. present the results of an *ad hoc* analysis of the EuSOS. The aim of the study was to evaluate patient age as an independent factor conditioning admission to the ICU after non-cardiac surgery in Spain, as well as to explore the factors associated to elderly patient admission to the ICU and

DOI of original article: https://doi.org/10.1016/j.medine.2018.01.011

☆ Please cite this article as: Martín Delgado MC, Gordo Vidal F. Servicios de medicina intensiva. ¿Cómo aportar valor al proceso quirúrgico? Med Intensiva. 2018;42:461–462.

* Corresponding author.
E-mail address: mcmartindelgado@gmail.com (M.C. Martín Delgado).

in-hospital mortality. A total of 5412 patients were included, of which 677 (12.5%) were admitted to the ICU after surgery. The main findings of the study were that elderly patients (over 80 years of age) were more likely to enter the ICU after surgery, though this was not associated to increased postoperative mortality after 60 days.[5] Likewise in this study, most of the patients that died (69%) had never been admitted to the ICU. With regard to the possible factors underlying lesser elderly patient admission to the ICU, the authors cited a certain inaccuracy in the definition of the evaluated resources; an important percentage of patients with hip fractures (commonly not considered for elective admission to intensive care); and the possibility that such patients may have been subject to limitation of life support measures or had undergone palliative oncological surgery – though these circumstances were not supported by the epidemiological characteristics of the series. The main limitations of the study were failure to consider the concept of frailty; no evaluation of postoperative adverse events except mortality; no consideration of organizational models or resources in the hospital ward; and failure to consider long-term mortality.

Elective admission of high risk surgical patients to the ICU has been questioned by some studies, probably in relation to the different organization models (open and closed ICUs) and the availability of resources (beds and intensive care professionals) found in different countries.[6] In Spain, where over 70% of all critical care beds are assigned to Departments of Intensive Care Medicine (DICMs), high risk surgical patients are more often admitted to the ICU than in other countries (12.5% versus 8%).

The study questions whether elderly patients experience limited access to the ICU, and whether this has an impact upon the outcomes. Recent guides have established that chronological age should not be the criterion deciding where the patient is to be admitted; rather, the applicable criteria are comorbidity, seriousness of the disease, previous performance status, and patient preferences.[7]

The aim of intensive care medicine is to offer patients quality care adapted to their needs and provided in the safest way possible – guaranteeing adequacy, sustainability, ethics and respect for personal autonomy. Extended Departments of Intensive Care Medicine and the ICU without walls model address the need for a broader and more balanced approach in critical patients, classifying them according to the care needed, rather than to the place of admission.[8]

Guaranteeing improved outcomes in surgical patients requires DICMs to oversee care throughout the process. The creation of rapid response teams and the ICU without walls model (teamwork involving different professionals and the automatic detection of severity, integrating clinical and laboratory test data) improve the outcomes and avoid unnecessary admissions of patients with established limitation of care measures. Innovation in management through industry-derived tools such as Lean techniques (based on reducing process variability and suppressing those elements which lack added value), and coordinated and multidisciplinary work result in improved patient care, with better outcomes, efficiency, patient safety and satisfaction on the part of the professionals. Such strategies have been shown to reduce delays in discharge from the ICU to the hospital ward, and this in turn can reduce the number of elective surgical patient admissions canceled due to a lack of ICU beds, as well as reduce unscheduled discharges that pose an increased risk for the patient.[9] Lastly, DICMs can contribute value to the surgical process in chronic critical patients through follow-up in the ward after discharge.[10]

The evaluation of these integrated management models through specific registries is necessary in order to ensure that surgical patients receive safe, effective and efficient care.

References

1. Weiser TG, Haynes AB, Molina G, Lipsitz SR, Esquivel MM, Uribe-Leitz T, et al. Estimate of the global volume of surgery in 2012: an assessment supporting improved health outcomes. Lancet. 2015;385 Suppl. 2:S11.
2. Naughton C, Feneck RO. The impact of age on 6-month survival in patients with cardiovascular risk factors undergoing elective non-cardiac surgery. Int J Clin Pract. 2007;61:768–76.
3. Pearse RM, Holt PJ, Grocott MP. Managing perioperative risk in patients undergoing elective non-cardiac surgery. BMJ. 2011;343:d5759.
4. Pearse RM, Moreno RP, Bauer P, Pelosi P, Metnitz P, Spies C, et al. Mortality after surgery in Europe: a 7 day cohort study. Lancet. 2012;380:1059–65.
5. de Nadal M, Pérez-Hoyos S, Montejo-González JC, Pearse R, Aldecoa C. Intensive care admission and hospital mortality in the elderly after non-cardiac surgery. Med Intensiva. 2018, http://dx.doi.org/10.1016/j.medin.2018.01.009 [in English, Spanish].
6. Sobol JB, Wunsch H. Triage of high-risk surgical patients for intensive care. Crit Care. 2011;15:217.
7. Nates JL, Nunnally M, Kleinpell R, Blosser S, Goldner J, Birriel B, et al. ICU admission, discharge, and triage guidelines: a framework to enhance clinical operations, development of institutional policies, and further research. Crit Care Med. 2016;44:1553–602.
8. Vincent JL, Einav S, Pearse R, Jaber S, Kranke P, Frnk J, et al. Improving detection of patient deterioration in the general hospital ward environment. Eur J Anaesthesiol. 2018;35:1–10.
9. Sirvent JM, Gil M, Alvarez T, Martin S, Vila N, Colomer M, et al. Lean techniques to improve the flow of critically ill patients in a health region with its epicenter in the intensive care unit of a reference hospital. Med Intensiva. 2016;40:266–72.
10. Extremera P, Añón JM, García de Lorenzo A. Are outpatient clinics justified in intensive care medicine? Med Intensiva. 2018;42:110–3 [in English, Spanish].