EDITORIAL

Delirium in Cardiac Surgery: The Brain, That Organ We Must Not Overlook

Delirio en cirugía cardíaca: el cerebro, ese órgano que no debemos olvidar

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Delirium is a common condition, particularly in elderly patients admitted to intensive care units. In addition to age, loss of sleep-wake rhythms, prolonged exposure to artificial light, spending days in a monotonous and depersonalized environment, and the use of sedative drugs—both for procedures and for the treatment of anxiety—are well-recognized predisposing factors. In many cases, these interventions could be avoided or mitigated through more active communication with patients or more open models of care that encourage family contact. All these factors are so well known and common, that those who work in critical care units can often predict, upon admission to the area, which patients are likely to become disoriented during their hospitalization.

If we add cardiac surgery to this context, in which sedation, extracorporeal circulation, alterations in the internal milieu, anemia, fluid overload, systemic inflammation, and mechanical ventilation converge, the onset of delirium is no longer a remote possibility. The problem is that delirium is not a simple disorder of consciousness: it is the clinical expression of a vulnerable brain exposed to systemic aggression, and its onset marks a prognostic turning point, with a proven impact on mortality, persistent cognitive impairment, and use of healthcare resources. (1–3)

In cardiac surgery, this vulnerability is further enhanced. Extracorporeal circulation, systemic inflammatory response, hemodynamic fluctuations, deep sedation, and advanced age create a particularly fertile ground for acute brain dysfunction. (4,5) However, despite this accumulated knowledge, delirium remains a paradoxical entity: it is clinically relevant, extensively studied, and at the same time underdiagnosed and often poorly treated.

In this issue of the Argentine Journal of Cardiology, Crippa et al. present the results of the multicenter ARGEN-CCV registry, which analyzes the incidence and predictors of delirium in more than 1500 patients undergoing cardiovascular surgery in our country. (6) The study reports an overall incidence of 9.1% and identifies coronary artery disease, postoperative sepsis, postoperative atrial fibrillation, and prolonged mechanical ventilation as independent predictors, with a risk model of adequate discriminatory power. This is a local, multicenter evidence with a sample size unprecedented for our region.

The international literature on cardiac surgery describes incidences that can reach 30%, with extremely wide ranges depending on the type of surgery, the population age, and, fundamentally, the diagnostic method used. (7,8) This variability is not a minor methodological detail, but rather highlights that delirium is an entity that is deeply dependent on how it is sought.

When we look beyond cardiac surgery, the discrepancy becomes even more evident. In common intensive care units, delirium affects the majority of patients on mechanical ventilation, with incidences exceeding 60–70% when systematic detection tools are used. (1,2) Even in non-ventilated patients, the figures rarely fall below 20–30%. In coronary or cardiac critical care units, contemporary studies describe incidence rates of delirium in the range of 14–20%, even in populations with a lower surgical burden than cardiac surgery. (9,10)

Non-cardiac surgery, major abdominal procedures, orthopedic surgery, and, in particular, hip fractures show incidences ranging from 10% to 37%, depending on age and the diagnostic methodology used. (8, 11–13) From this perspective, the 9.1% reported by the ARGEN-CCV registry is clearly at the lower end of what has been published.

This discrepancy should not be interpreted as a difference attributable to the type of patient or pro-

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cedure performed, but rather, as the authors themselves point out, as a methodological problem. In the ARGEN-CCV registry, the diagnosis of delirium was based on clinical identification by the treating teams, without the systematic application of validated tools such as CAM-ICU or ICDSC. (6) The accumulated experience in critical care is compelling: delirium that is not actively investigated may not be detected, (1,3) especially in its hypoactive forms, which are frequent and clinically relevant.

The risk factors identified by Crippa et al. show clear pathophysiological consistency. Postoperative sepsis, prolonged mechanical ventilation, and postoperative atrial fibrillation emerge as robust markers. (6–8) Sepsis represents the paradigm of inflammatory encephalopathy, where endothelial dysfunction, microvascular alterations, and neuroinflammation converge to compromise brain function. (14) Prolonged mechanical ventilation condenses deep sedation, sleep deprivation and immobility, all recognized triggers of delirium. (1,2) Postoperative atrial fibrillation, often interpreted as an electrical complication, can also be read as a marker of systemic inflammation and hemodynamic instability, an association confirmed in recent meta-analyses. (7)

Thus, delirium does not appear as an isolated event, but as the clinical result of a cascade of metabolic and organic dysfunction. Although frailty did not reach full statistical significance in Crippa's work, it summarizes neurological vulnerability and lower physiological reserve and has been consistently associated with an increased risk of postoperative delirium. (15)

The main merit of the ARGEN-CCV registry lies not only in the figures reported, but also in the discussion it enables. Incorporating systematic detection of delirium as part of standard care would allow for more accurate estimation of its actual incidence, evaluation of preventive strategies, optimization of sedative use, and improvement of cognitive outcomes. (1,3,16)

Delirium is not just background noise in the postoperative period, but a clinical sign where there is still ample room for improvement. Optimizing the hospital environment, preserving the sleep-wake cycle, minimizing unnecessary stimuli during the night, encouraging family contact, taking an adequate psychiatric history, using validated diagnostic tools, and forming interdisciplinary teams dedicated to the neurocognitive care of cardiovascular patients (16) are necessary steps if the incidence of delirium in the postoperative period of cardiac surgery is to be reduced.

Conflicts of interest
None declared
(See authors conflicts of interest forms on the website).

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