



Editorial

The Acutely Failing Heart Plus Failing Brain Equals Double Trouble: Clinical Significance of Intensive Care Unit Delirium in Patients With Heart Failure

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See article by Iwata et al., pages 1649–1657 of this issue.

Problem of Delirium in Heart Failure

Delirium is an acute, fluctuating mental state characterized by perturbations or disruptions in consciousness, attention, and reasoning.¹ Although the acute symptoms of delirium usually resolve before discharge, the risk for adverse health outcomes in and out of hospital are greater in a patient who was delirious.² Delirium is common in acutely ill patients, particularly in the intensive care unit (ICU), with rates as high as 80%.^{3,4} However, the magnitude by which delirium affects the risk for adverse health outcomes may be greater in patients with a lower functional baseline, including patients with heart failure (HF) requiring hospitalization and ICU level of care.

In this issue of the *Canadian Journal of Cardiology*, Iwata et al.⁵ investigated the in-hospital and 1-year prognostic value of delirium assessment in 408 patients recruited from September 2014 to March 2017 with a diagnosis of acute HF requiring ICU care and intravenous diuretics, vasodilators, or inotropes. When patients were systematically assessed with the use of a validated delirium screening tool (Confusion Assessment Method for the ICU), 109 (26.7%) had at least 1 episode of delirium during their ICU stay (52/109 hyperactive [47.7%], 39/109 hypoactive [35.8%], 18/109 mixed [16.5%]). Factors associated with delirium prevalence during a patient's hospital stay were age, HF severity, nursing home residence, and dementia diagnosis. The rate of deaths in hospital was 13.8% (15/109) in patients who developed delirium vs 2.3% (7/299) in those who did not, which

resulted in a more than 4-fold higher odds of death in the delirious patient (odds ratio 4.33, 95% confidence interval [CI] 1.62-11.52)). The risk of 1-year death remained elevated in patients who developed delirium and survived during their hospital stay (hazard ratio 2.19, 95% CI 1.49-3.25)). This risk was independent from demographics and HF disease severity (sample sizes of 1-year deaths in each group were not provided).

Iwata et al. showed that the total burden of HF severity, assessed with the use of the Get With The Guidelines heart failure risk score (a risk score which combines cardiovascular risk factors), discriminated the risk for those who died in hospital (receiver operating characteristic [ROC] 0.847), and delirium provided incremental predictive value when added to the model (ROC 0.875). However, when the individual cardiovascular risk factors in the HF risk score (systolic blood pressure, blood urea nitrogen, sodium, resting heart rate, ejection fraction, previous ischemic events and cerebral infarctions) were examined individually, they provided no prognostic value for mortality risk prediction. Indeed, this finding supports that a progressive accumulation of cardiovascular health issues may be reflective of higher degrees of frailty in combination with an admission diagnosis of acute HF, consequently leading to increased delirium rates and mortality risk.⁶⁻⁸ Understanding the burden of frailty and delirium in patients with acute HF is intriguing because it could offer the possibility to define finer grades of risk for poor in-hospital and discharge outcomes. However, the investigation of this idea was beyond the scope of this study.

As seen in other ICU patient populations,^{2,9} the study by Iwata et al.⁵ confirms that HF patients with delirium are at a greater risk of experiencing an adverse event beyond their hospital stay. These important findings, however, should be extended to examine other patient-centred health

Received for publication February 7, 2020. Accepted March 23, 2020.

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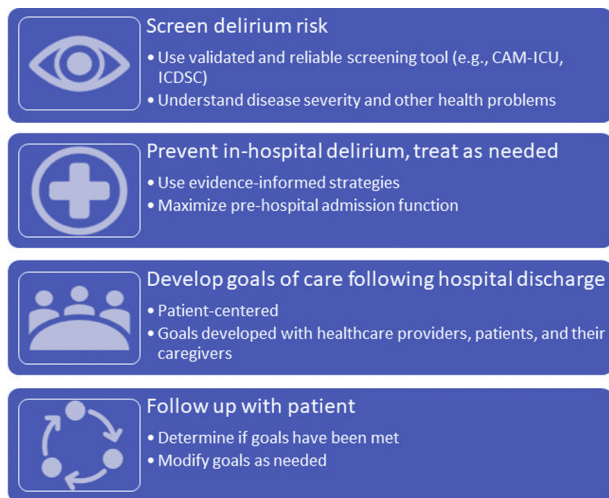


Figure 1. Goals of care for patients in the intensive care unit. CAM-ICU, Confusion Assessment Method for the Intensive Care Unit; ICDS, Intensive Care Delirium Screening Checklist.

outcomes. Post-intensive care syndrome, which represents a constellation of cognitive, physical, and psychosocial impairment, is common among patients who experience delirium in the ICU.¹⁰ Indeed, these functional impairments may persist well beyond (12 months) hospital discharge, including worse cognitive function and the development of impairments in activities of daily living.^{11,12} Patients may also find themselves requiring additional long-term care after their hospital visit.² Indeed, the consequences of delirium have a profound impact on patient quality of life that will determine whether patients live in good health or simply survive following hospital discharge. This is especially true for patients with HF in the worst health, as shown by Iwata et al.⁵

Improving Prognosis for Patients Out of Hospital

This work by Iwata et al.⁵ further highlights the impact of delirium in a vulnerable cardiac patient population. Teams should seek to determine baseline function, including an assessment of frailty, cognition, medical reconciliation, and history of delirium during previous acute illness to alert the team of potential patient risk. As seen in other cardiac populations requiring admission to the ICU, approximately 1 in 4 patients experience delirium when the team uses a validated systematic screening tool.^{6,13,14} It is important for teams that care for these vulnerable patients to invest in the appropriate training and auditing of the bedside to screen for delirium. This approach will ensure an accurate and timely delirium assessment, because early detection is tantamount to finding an underlying, potentially treatable, etiology. The significant association with delirium and poor in-hospital and longer-term outcome in patients with HF highlights the need for further work to develop comprehensive strategies to mitigate harm in these vulnerable patients. Teams who treat patients with HF in the ICU environment should

consider the appropriate inclusion of management strategies to facilitate mechanical ventilation and ICU liberation in patients.¹⁵ In addition, the care of the HF patient should include a comprehensive plan not only in the hospital but also after transition back to the community (Fig. 1). Whether continuous monitoring of vulnerable patients will mitigate hospital readmission rates and enable patients to live in good health is less clear and warrants further investigation.

Funding Sources

D.S.K. is supported by the Nova Scotia Health Authority Research Fund. R.C.A. is supported by operating grants from the Canadian Institutes of Health Research and the Heart and Stroke Foundation and by salary support from the Department of Surgery, Max Rady College of Medicine, University of Manitoba.

Disclosures

R.C.A. holds an unrestricted educational grant from Pfizer Canada and receives honoraria from Malickrodt Pharmaceuticals. This conflict of interest is unrelated to the present commentary. D.S.K. has no conflicts of interest to disclose.

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