

Detection and Management of Preexisting Cognitive Impairment in the Critical Care Unit

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KEYWORDS

- Cognitive impairment • Dementia • Delirium • Neuropsychiatric symptoms
- Behavioral and psychological symptoms in dementia

KEY POINTS

- Older adults account for half of intensive care unit (ICU) admissions and ICU days, and older adults in the ICU have a 40% prevalence of preexisting cognitive impairment (PCI).
- PCI increases risk of ICU admission, in-hospital mortality, nosocomial infection, and delirium. It may also impact ICU utilization and care decisions, including medical decision-making surrogacy.
- More than half of PCI may remain unidentified without screening. Screening takes less than 5 minutes and ideally involves collateral informants (eg, using the Informant Questionnaire on Cognitive Decline in the Elderly).
- First-line management of neuropsychiatric symptoms associated with PCI should involve nonpharmacological interventions as feasible (eg, addressing sources of distress, healthy sleep-wake cycles, active caregiver involvement).
- Common neuropsychiatric symptoms of PCI include impulse dyscontrol, comportment (personality) change, affective dysregulation, motivational deficit, perceptual change/psychosis, and sundowning behavior (acronym: I CAMP at sundown).

IMPORTANCE OF PREEXISTING COGNITIVE IMPAIRMENT IN THE INTENSIVE CARE UNIT

Brain health among the critically ill has received increasing interest among clinicians and researchers alike for the past 2 decades, and older adults deserve particular attention because they represent the most cognitively vulnerable population. As of 2015, nearly 50 million adults in the United States were 65 and older, and by 2030,

This article is an update of an article previously published in *Critical Care Clinics*, Volume 24, Issue 4, October 2008.

Conflicts of Interest: The authors report no relevant conflicts of interest.

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Crit Care Clin ■ (2017) ■-■

<http://dx.doi.org/10.1016/j.ccc.2017.03.001>

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older adults are projected to comprise one-fifth of the US adult population.¹ An estimated 5 million, or 1 in 10, older adults has Alzheimer disease (AD), the most common cause of dementia worldwide, and of these, more than half are undiagnosed.² An aging population with increasing burden of cognitive impairment has pressing relevance for intensive care, because older adults account for half of intensive care unit (ICU) admissions³ and more than half of ICU hospital days.⁴ Furthermore, despite marked regional differences in ICU admissions for older adults with advanced dementia, ICU utilization in the last 30 days of life has been increasing.⁵

In comparison with data on long-term cognitive impairment after critical care (see José R. Maldonado's article, "[Acute Brain Failure: Pathophysiology, Diagnosis, Management and Sequelae of Delirium](#)," in this issue), the role of preexisting cognitive impairment (PCI) in patients in the ICU has received significantly less attention. Nevertheless, dementia predicts nearly twice the rate of in-hospital mortality,⁶ an effect attributed to greater rates of infection,⁷ acute organ dysfunction, severe sepsis,⁸ and lower use of life-support treatments.⁹ Even mild cognitive impairment (MCI) increases the risk of ICU admission by 50%,¹⁰ and predicts a greater than fivefold odds of developing delirium after elective coronary artery bypass grafting.¹¹ Moreover, among patients undergoing elective surgery requiring surgical ICU admission, cognitive impairment is associated with a higher postoperative complication rate, longer hospitalization, and higher rate of institutionalization on discharge.¹²

As proactive delirium detection and management are becoming standard of care in the ICU, the role of PCI among patients in the ICU, particularly among older adults, deserves similar attention. Here we discuss the critical role that cognitive impairment plays in ICU care and provide a review on detection and management of PCI in patients in the ICU.

DEFINITIONS

Cognition may be impaired in many ways, and due to a variety of not-uncommonly concurrent processes. *Delirium* is an acute state of confusion. Per the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), it is characterized by impaired awareness of one's surroundings, inattention, and at least 1 demonstrable cognitive deficit, which can include poor memory, disorientation, disorganized thinking, or executive dysfunction. Delirium represents a change from baseline cognition, and it cannot be better characterized as coma or a progressive neurocognitive or neurodegenerative disorder.¹³

DSM-5 reframed dementia as major neurocognitive disorder (NCD) in 2013. *Major NCD* represents a global decline in cognitive and general functioning from baseline and typically progresses over the course of months to years. The 6 cognitive domains included for NCD diagnosis include complex attention, executive function, learning and memory, language, perceptual motor, and social cognition. Only 1 domain must be "significantly" impaired to the extent this deficit interferes with independence in activities of daily living; NCD due to AD is an exception in that it requires impairment in at least 2 domains, 1 of which must be learning and memory.¹³ Similarly, the National Institute on Aging and Alzheimer's Association (NIA-AA) published separate diagnostic criteria for all-cause dementia and dementia due to AD in 2011, which differ only slightly from those in the DSM-5 ([Box 1](#)).¹⁴ The NIA-AA guidelines outline 5 cognitive domains, which exclude the DSM-5 domain of complex attention, and they require impairment in at least 2 domains for dementia of any cause. Worldwide, AD accounts for the vast majority of major NCD cases and may co-occur with ischemic cerebrovascular disease, cortical Lewy bodies, or other causes of neurocognitive decline.¹⁵

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