

Long-term cognitive impairment too common after critical illness

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Patients treated in intensive care units across the globe are entering their medical care with no evidence of cognitive impairment but oftentimes leaving with deficits similar to those seen in patients with traumatic brain injury (TBI) or mild Alzheimer's disease (AD) that persists for at least a year, according to a Vanderbilt study published today in the *New England Journal of Medicine*.

The study, led by members of Vanderbilt's ICU Delirium and Cognitive Impairment Group, found that 74 percent of the 821 [patients](#) studied, all adults with respiratory failure, cardiogenic shock or septic shock, developed [delirium](#) while in the hospital, which the authors found is a predictor of a dementia-like brain disease even a year after discharge from the ICU.

Delirium, a form of acute brain dysfunction common during [critical illness](#), has consistently been shown to be associated with higher mortality, but this large study of medical and surgical ICU patients demonstrates that it is associated with long-term [cognitive impairment](#) in ICU survivors as well. At three months, 40 percent of patients in the study had global cognition scores similar to patients with moderate TBI, and 26 percent scored similar to patients with AD.

Deficits occurred in both older and younger patients, irrespective of whether they had coexisting illness, and persisted to 12 months, with 34 percent and 24 percent still having scores similar to TBI and AD patients, respectively.

"As [medical care](#) is improving, patients are surviving their critical illness more often, but if they are surviving their critical illness with disabling forms of cognitive impairment then that is something that we will have to be aware of because just surviving is no longer good enough," said lead author Pratik Pandharipande, M.D., MSCI, professor of Anesthesiology and Critical Care.

"Regardless of why you come in to an ICU, you have to know that, on the back end of your [critical care](#), you are very likely to be suffering cognitively in ways similar to a TBI patient or an AD patient, except that most of the medical profession doesn't even know that this is happening and few around you suspect anything, leaving most to suffer in silence," said senior author Wes Ely, M.D., professor of Medicine.

"Delirium in critically ill, hospitalized adults is a serious yet understudied issue," said Molly Wagster, Ph.D., chief of the Behavioral & Systems Neuroscience Branch in the National Institute on Aging, part of the NIH. "These new findings provide important evidence of the extent of the problem, the imperative for greater recognition and the pressing need for solutions."

Ely said at least some component of this brain injury may be preventable through efforts to shorten the duration of delirium in the ICU by using careful delirium monitoring and management techniques, including earlier attempts at weaning from sedatives and mobility protocols that can save lives and reduce disability.

"Even after the patient leaves the hospital, we think that cognitive rehabilitation might be helpful to somebody like this, and we have some early preliminary data supporting this," he said.

Provided by Vanderbilt University Medical Center

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