Long-Lasting Depressive Symptoms, Physical Impairment Often Follows ICU Stays

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Critically ill patients who recover from a potentially deadly syndrome known as acute lung injury frequently emerge with new, apparently long-lasting depressive symptoms and new physical impairments that make them unable to perform many daily tasks, Johns Hopkins research suggests.

Results of the new study, published in the *American Journal of Respiratory and Critical Care Medicine*, also suggest that the depressive symptoms frequently precede the new physical impairments, not the other way around. The research team also said the findings may be applicable to patients with other types of disease or injury who spend time in hospital intensive care units hooked up to ventilators that breathe for them.

"When people are discharged from the ICU, we tend, understandably, to focus on their physical health, but our data tell us we need to focus on their mental health, too," says study leader O. Joseph Bienvenu, M.D., Ph.D., an associate professor of psychiatry and behavioral sciences at the Johns Hopkins University School of Medicine. "Depression can make recovery much more difficult. Identifying depressive symptoms early — and treating them — could make a real difference in how patients fare physically in the long term."

Bienvenu and his colleagues assessed 186 survivors of acute lung injury from four Baltimore hospitals at three, six, 12 and 24 months after they became ill, and surveyed their levels of depression as well as their ability to independently perform important tasks of daily life, such as using the telephone, shopping and preparing food.

The Hopkins team found that 40 percent of the patients developed depressive symptoms in the first two years after discharge even though they had not previously experienced them, and that 66 percent experienced new physical impairments. The average age of patients in the study was 49 years — people who should be in the prime of their lives but became disabled and unable to return to work, the researchers say. The researchers are continuing to follow these patients to see if the problems persist for an even longer period of time.

"Patients are burdened for a very long time after their hospital stays," says principal investigator Dale M. Needham, M.D., Ph.D., an associate professor of pulmonary and critical care medicine and physical medicine and rehabilitation at the Johns Hopkins University School of Medicine. "We need to figure out what we can do to help these previously productive people get back their lives."

Needham says it is unclear whether it is the acute lung injury syndrome itself causing the new problems or whether the cause is to be found in how patients are routinely cared for in ICUs. Standard ICU care for patients with acute lung injury often includes deep sedation and bed rest. Long stretches of inactivity are known to cause physical impairment, and the use of high-dose benzodiazepines to sedate ICU patients has been associated with depressive symptoms. Needham suspects that both critical illnesses themselves and typical ICU practices contribute to negative outcomes.

Patients' lungs typically recover relatively quickly from acute lung injury, a syndrome often caused by pneumonia, but also by other infections or trauma. In acute lung injury, the body's inflammatory

response is revved up and gets out of control, causing fluid to flood into the breathing spaces of the lungs and respiratory failure. An estimated 190,000 Americans suffer from acute lung injury each year and more than 74,000, almost 40 percent, will die while in hospital.

Needham says it is important that intensivists like himself, and psychiatrists like Bienvenu work together to ensure the best outcomes for patients, a collaboration that is frequently missing in the care of ICU patients.

Bienvenu says he was surprised by the finding that depressive symptoms frequently precede new physical impairments, since the conventional wisdom is that the inability after an ICU stay to do things like grocery shopping, driving and walking long distances causes patients to feel demoralized about the loss of these functions. But the reverse appears to be true, he says. Depressed patients, he suggests, are harder to motivate to do the physical activities necessary for recovery and maintenance of function.

Bienvenu says acute lung injury is considered an archetypal critical illness and that its consequences may be present to one degree or another in patients who have suffered other critical illnesses. “All doctors should look out for these symptoms in their patients who have been in the ICU,” he says.

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Other Hopkins researchers involved in the study include Elizabeth Colantuoni, Ph.D.; Pedro A. Mendez-Tellez, M.D.; Victor D. Dinglas, B.S.; Nadia Husain, M.S.; Cheryl R. Dennison, R.N., Ph.D.; and Peter J. Pronovost, M.D., Ph.D.