

# Long-term neuropsychological impairment is common in acute lung injury survivors

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Cognitive and psychiatric impairments are common among long-term survivors of acute lung injury (ALI), and these impairments can be assessed using a telephone-based test battery, according to a new study.

"Neuropsychological impairment is increasingly being recognized as an important outcome among survivors of critical illness, but neuropsychological function in long-term ALI survivors has not been assessed in a multi-center trial, and evidence on the etiology of these impairments in ALI survivors is limited," said lead author Mark E. Mikkelsen, MD, MSCE, assistant professor of medicine at the University of Pennsylvania. "To overcome the constraints of in-person assessment, we developed a telephone battery of standardized neuropsychological tests that could be administered by a non-expert and used it to assess a subset of 122 ALI survivors from the [Acute Respiratory Distress Syndrome](#) Clinical Trials Network Fluid and Catheter Treatment Trial."

"We found that neuropsychological function can be assessed by telephone in a multi-center trial, and that long-term neuropsychological impairment is common in these patients," continued Dr. Mikkelsen. "We also found that hypoxemia was associated with an increased risk for long-term cognitive and psychiatric impairment."

The findings were published online ahead of print publication in the American Thoracic Society's *American Journal of Respiratory and [Critical Care Medicine](#)*.

The test battery was administered to study subjects at two and 12 months after discharge from the hospital. At 12 months, memory, verbal fluency, and executive function (a set of cognitive abilities necessary for effective daily functioning) were impaired in 13, 16, and 49 percent of survivors, respectively, while cognitive impairment (defined as impairment in memory, [verbal fluency](#), and/or executive function) was found in 41 of 75 survivors (55 percent). Depression, post-traumatic stress disorder, and anxiety were found in 36, 39, and 62 percent of long-term survivors.

Enrollment in a conservative fluid-management strategy was significantly associated with the development of cognitive impairment, and lower partial pressure of arterial oxygen during the trial was associated with a significantly increased risk of both cognitive and psychiatric impairment. "Although it is plausible that use of a conservative fluid-management strategy was associated with an increased risk for long-term cognitive impairment," Dr. Mikkelsen said, "based on the small sample size and an unclear mechanism, this finding warrants confirmation."

The study had a few limitations, including its small sample size and the use of self-report for several measures.

"Our study confirms earlier research showing that cognitive and psychiatric morbidity are common among long-term survivors of ALI," concluded Dr. Mikkelsen. "We are indebted to the NIH for supporting EA-PAC, the parent study of the present study, and for recognizing the importance of assessing a multitude of long-term outcomes to properly understand survivorship and ultimately to improve the lives of critically ill survivors."

Provided by American Thoracic Society

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