

What's New in the Patient Safety World

February 2014

New Studies on Delirium

We've done multiple columns on delirium, its assessment, and its management (see list at the end of today's column). But the etiology and pathophysiology of delirium has remained largely speculative. But a new study from researchers at Vanderbilt, which is well known for its work on delirium, has some good insights into the pathophysiology (Hughes 2014). The researchers looked at biomarkers of blood-brain barrier dysfunction and endothelial dysfunction in 134 ICU patients with respiratory failure or shock. They assessed patients for delirium with the CAM-ICU and RASS tools. They found that delirium-free days and coma-free days were reduced in patients with higher levels of the biomarkers for both blood-brain barrier dysfunction and endothelial dysfunction, even after adjustment for confounding variables. Further adjustment suggested that the endothelial dysfunction is not simply mediated via the blood-brain barrier dysfunction.

The study results suggest possible targets for new therapies to prevent delirium. For example, statins might be a potential therapy. In fact, another study just published ([Page 2014](#)) showed that continued use of statins, in ICU patients previously taking statins, is associated with a lower daily risk of delirium. They attribute the effect to the anti-inflammatory effect of statins. These findings should be considered preliminary and the authors note an ongoing clinical trial is investigating if statins are a potential therapy for delirium in the critically ill.

A recent systematic review of screening for delirium in the emergency department ([LaMantia 2014](#)) found that several delirium screening tools have been used in investigations in the ED but validation of these instruments for this particular environment has been minimal to date. Moreover, the ideal interval(s) during which a delirium screening process should take place has yet to be determined. You'll recall that fluctuation is a critical component in detecting delirium. It is repeat assessments over time that helps us identify delirium in other settings, such as ICU's and post-op recovery areas. The authors call for development of better tools to screen for delirium in the ED and determination of the optimum intervals for such screening.

Meanwhile, another abstract presented at the Society of Critical Care Medicine (SCCM) 43rd Critical Care Congress in January seems to challenge the traditional concept that ICU delirium is related to long-term mortality and poorer quality of life. While their data showed greater mortality and greater declines in a quality of life measure in patients who experienced ICU delirium, after adjustment for confounders the differences were no

longer statistically significant. The study did, however, demonstrate that the risk of mild cognitive dysfunction in survivors was increased more than two-fold.

Lastly, just as we came to press, a review article appeared in NEJM ([Reade 2014](#)). Though it does not contain any new information, it does have a good review of previous work related to the dual concepts of sedation and delirium.

Delirium remains common in multiple hospital settings and many patients are undiagnosed. We hope that studies on the pathophysiology of delirium will lead to development of appropriate treatments. In the interim, we still need to be on the lookout for delirium and institute the preventive and ameliorating measures we've discussed in our prior columns on delirium.

Some of our prior columns on delirium assessment and management:

- October 21, 2008 "[Preventing Delirium](#)"
- October 14, 2009 "[Managing Delirium](#)"
- February 10, 2009 "[Sedation in the ICU: The Dexmedetomidine Study](#)"
- March 31, 2009 "[Screening Patients for Risk of Delirium](#)"
- June 23, 2009 "[More on Delirium in the ICU](#)"
- January 26, 2010 "[Preventing Postoperative Delirium](#)"
- August 31, 2010 "[Postoperative Delirium](#)"
- September 2011 "[Modified HELP Helps Outcomes in Elderly Undergoing Abdominal Surgery](#)")
- December 2010 "[The ABCDE Bundle](#)"
- February 28, 2012 "[AACN Practice Alert on Delirium in Critical Care](#)"
- April 3, 2012 "[New Risk for Postoperative Delirium: Obstructive Sleep Apnea](#)"
- August 7, 2012 "[Cognition, Post-Op Delirium, and Post-Op Outcomes](#)"
- September 2013 "[Disappointing Results in Delirium](#)"
- October 29, 2013 "[PAD: The Pain, Agitation, and Delirium Care Bundle](#)"

References:

Hughes C, Girard T, Thompson J, et al. Role of Endothelial Dysfunction and Blood-Brain Barrier Injury in Acute Brain Dysfunction. Society of Critical Care Medicine (SCCM) 43rd Critical Care Congress: Abstract 595. Presented January 10, 2014

Page VJ, Daniel Davis D, Zhao XB, et al. Statin Use and Risk of Delirium in the Critically Ill. American Journal of Respiratory and Critical Care Medicine 2014; Posted online on 13 Jan 2014

<http://www.atsjournals.org/doi/abs/10.1164/rccm.201306-1150OC?prevSearch=casarin&searchHistoryKey=#.Ut1kaLR0nIU>

LaMantia MA, Messina FC, Hobgood CD, Miller DK. Screening for Delirium in the Emergency Department: A Systematic Review. Annals of Emergency Medicine 2014; Review article (In Press Corrected Proof) 18 December 2013

<http://www.annemergmed.com/article/S0196-0644%2813%2901584-9/abstract>

Wolters A, van Dijk D, Pasma W, et al. Long-Term Outcome of Delirium During ICU Admission in Survivors of Critical Illness. Society of Critical Care Medicine (SCCM) 43rd Critical Care Congress: Abstract 50. Presented January 2014

Reade MC, Finfer S. Sedation and Delirium in the Intensive Care Unit. N Engl J Med 2014; 370: 444-454

<http://www.nejm.org/doi/full/10.1056/NEJMra1208705>



Healthcare Consulting
www.patientsafetysolutions.com

<http://www.patientsafetysolutions.com/>

[Home](#)

[Tip of the Week Archive](#)

[What's New in the Patient Safety World Archive](#)