Deliurium in Adults With COVID-19–Related Acute Respiratory Distress Syndrome
Comparison With Other Etiologies

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Study Question
Is the prevalence of delirium in patients with COVID-19–associated acute respiratory distress syndrome (ARDS) higher than in patients with ARDS from other causes?

What Is Known and What This Paper Adds
Several studies have suggested that patients admitted to intensive care unit (ICU) for severe ARDS due to COVID-19 are more prone to develop delirium than patients with ARDS from other origin, but no comparative study addressed this question. This investigation’s results show that the delirium prevalence is similar among patients with ARDS due to COVID-19 or from other etiologies (69.1% vs 60.5%, p = 0.246).

Methods
This retrospective cohort study included 311 patients with ARDS (253 with COVID-19 and 58 with other conditions) admitted to the ICU between December 2017 and June 2021. Patients with preexisting dementia were excluded. The primary outcome was delirium assessed by the confusion assessment method (CAM-ICU) and analyzed in a multivariable model, including parameters suggested to affect its development (illness severity, mechanical ventilation length, doses of analgesia and sedation, chronic obstructive pulmonary disease, BMI, and steroid use). Overall, CAM-ICU could be assessed in 231 patients (74.3% of COVID-19 vs 74.1% of other causes). Furthermore, we analyzed the overall survival at 30 days and 180 days. We also compared the occurrence of critical illness weakness and central nervous system complications (stroke, hemorrhage, and vasculitis) across the groups, as reported in patients’ files.

Results and Study Limitations
At baseline, patients with ARDS from COVID-19 and other causes had comparable demographics, history of stroke or mild cognitive impairment, and ARDS severity. However, patients with COVID-19 had a higher BMI, and those with other causes higher illness severity and chronic obstructive pulmonary disease prevalence. Patients with COVID-19–related ARDS required mechanical ventilation (12 vs 7 days, p = 0.03) and were in coma (10 vs 4 days, p < 0.001) for a longer time. They received higher doses of propofol (541 vs 185 mg/kg, p < 0.001), dexmedetomidine (3 vs 0 mg/kg, p = 0.04), fentanyl (196 vs 93 μg/kg, p < 0.001), and neuromuscular-blocking agents (5.6 vs 3.9 mg/kg, p = 0.03). Similarly, steroids were more frequently used in patients with COVID-19 (69 vs 54%, p = 0.03). Delirium occurred with a comparable risk in the 2 groups when taking into account potential confounders. Furthermore, overall survival at 30 days and 180 days was similar between groups. Rates of reported critical illness weakness and central nervous system complications did not differ statistically. Limitations of this study include its retrospective design and small sample size, which could have affected the sensitivity to detect smaller differences between groups.

Study Funding and Competing Interests
This study did not receive targeted funding. The authors report no competing interests. Go to Neurology.org/N for full disclosures.

Table: Outcomes Measures
<table>
<thead>
<tr>
<th>Between group differences</th>
<th>Unadjusted odds ratio (95% CI)</th>
<th>Adjusted odds ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delirium</td>
<td>1.47 (0.74–2.91)</td>
<td>0.86 (0.35–2.1)</td>
</tr>
<tr>
<td>All-cause mortality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 d after admission</td>
<td>0.58 (0.3–1.08)</td>
<td>0.87 (0.39–1.92)</td>
</tr>
<tr>
<td>180 d after admission</td>
<td>0.55 (0.3–0.98)</td>
<td>0.67 (0.33–1.35)</td>
</tr>
<tr>
<td>Neurologic complications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central nervous system complications</td>
<td>1.07 (0.3–3.9)</td>
<td>1.15 (0.25–5.29)</td>
</tr>
<tr>
<td>Critical illness weakness</td>
<td>2.87 (1.19–7.01)</td>
<td>2.99 (0.97–9.1)</td>
</tr>
</tbody>
</table>

Acute respiratory distress syndrome from other causes is the reference group for odds ratio.
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