

## Impact of Postoperative Sepsis on Dementia



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Dementia is a progressive neurodegenerative disease with growing public health and economic implications. In 2019, 57.4 million people had dementia worldwide, a number projected to reach 152.8 million by 2050. The global financial burden is substantial, estimated at \$1.31 trillion annually. As dementia prevalence rises, increased healthcare resources and preventive strategies will be critical.

Postoperative sepsis is a severe complication that increases morbidity, mortality, and the risk of long-term cognitive decline, including dementia. It triggers systemic inflammation, blood-brain barrier dysfunction, and neuronal damage. While sepsis has been linked to dementia in general populations, its impact in postoperative settings remains understudied.

A new study used data from the National Health Insurance Research Database (NHIRD) to investigate the association between postoperative sepsis and dementia. Previous research has explored infection-related dementia risk but not specifically in the postoperative period. If a link is confirmed, targeted perioperative interventions could help mitigate both immediate complications and long-term dementia risk.

The study analysed data from Taiwan's National Database (2005–2022). Surgeries performed between 2008 and 2013 were analysed to identify patients without prior dementia. A 12-month post-surgery period was used to track sepsis events and assess their impact on dementia risk. 778 patients were in the postoperative sepsis group and 3,112 in the non-sepsis group.

Study findings show that dementia incidence was higher in the sepsis group (26% vs. 13.6%). A dose-response relationship was observed, as dementia rates increased from 24.5% with one sepsis event to 34.9% with multiple events. Mortality was also higher in the sepsis group (40.5% vs. 31.6%).

This study provides new evidence linking postoperative sepsis to increased risks of dementia and mortality in surgical patients. Patients who developed postoperative sepsis had a higher incidence of dementia (26% vs. 13.6%), with a dose-response effect—those experiencing multiple sepsis events faced a significantly greater risk (34.9%). These findings highlight the need for improved perioperative infection control strategies to prevent sepsis and its long-term cognitive consequences.

Compared to previous research, which primarily examined general infections, this study is among the first to focus specifically on postoperative sepsis. It highlights distinct mechanisms, including systemic inflammation, blood-brain barrier dysfunction, and neurovascular damage, that may contribute to cognitive decline following sepsis.

These findings establish a strong association between postoperative sepsis and increased dementia risk, showing a dose-dependent effect. Patients with multiple sepsis episodes faced a significantly higher dementia incidence. The study highlights the need for improved perioperative infection control and sepsis prevention to mitigate both immediate and long-term cognitive risks.

Source: [Critical Care](#)  
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