

# Association between perioperative hypotension and delirium in postoperative critically ill patients: A retrospective cohort analysis

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## Study design

Retrospective cohort analysis

## Background

Postoperative delirium can occur shortly after surgery in approximately 11% to 43% of patients. One of the proposed factors causing postoperative delirium is low blood pressure during or shortly after surgery resulting in decreased blood flow into the brain.

## Objective

This analysis sought to determine the relationship between perioperative hypotension and postoperative delirium in critically ill noncardiac surgery patients.

## Methods

A total of 1083 patients who had noncardiac surgery at Cleveland Clinic, were admitted to surgical intensive care unit (ICU) within 8 hours after surgery and remained in the critical care up to at least 48 hours, were involved in this analysis. Hypotension was analysed using the mean arterial pressure (MAP). Time weighted average (TWA) MAP <65 mmHg was used during surgery, while the lowest MAP was used during the ICU stay. Delirium was assessed using the validated Confusion Assessment Method for ICU (CAM-ICU) scale.

## Main findings

A total of 377 (35%) of the patients had delirium within 5 days after surgery. The analysis showed that 1 mmHg increase in TWA MAP <65 mmHg during surgery and 10 mmHg decrease in lowest MAP during the surgical ICU stay were significantly associated with an increased cause-specific hazard of delirium.

## Conclusion

The findings of this retrospective cohort analysis indicate that both intraoperative and postoperative hypotension were associated with delirium in patients undergoing noncardiac surgery admitted to surgical ICU. Perioperative hypotension reduction may help reduce delirium in critically ill noncardiac surgery patients.

