

Concurrent surgery

Concurrent surgery, also known as “running two rooms” or simultaneous/overlapping operation, have recently come under intense scrutiny. The goal of a study was to evaluate the operative time and outcomes of concurrent versus nonconcurrent vascular neurosurgical procedures.

Zygourakis et al., retrospectively reviewed 1219 procedures performed by 1 vascular neurosurgeon from 2012 to 2015 at the University of California, [San Francisco](#). Data were collected on patient age, sex, severity of illness, risk of mortality, American Society of Anesthesiologists (ASA) status, procedure type, admission type, insurance, transfer source, procedure time, presence of resident or fellow in operating room (OR), number of co-surgeons, estimated blood loss (EBL), concurrent vs nonconcurrent case, severe sepsis, acute respiratory failure, postoperative stroke causing neurological deficit, unplanned return to OR, 30-day mortality, and 30-day unplanned readmission. For aneurysm clipping cases, data were also obtained on intraoperative aneurysm rupture and postoperative residual aneurysm. Chi-square and t-tests were performed to compare concurrent versus nonconcurrent cases, and then mixed-effects models were created to adjust for different procedure types, patient demographics, and clinical indicators between the 2 groups.

There was a significant difference in procedure type for concurrent (n = 828) versus nonconcurrent (n = 391) cases. Concurrent cases were more likely to be routine/elective admissions (53% vs 35%, $p < 0.001$) and physician referrals (59% vs 38%, $p < 0.001$). This difference in patient/case type was also reflected in the lower severity of illness, risk of death, and ASA class in the concurrent versus nonconcurrent cases ($p < 0.01$). Concurrent cases had significantly longer procedural times (243 vs 213 minutes) and more unplanned 30-day readmissions (5.7% vs 3.1%), but shorter mean length of hospital stay (11.2 vs 13.7 days), higher rates of discharge to home (66% vs 51%), lower 30-day mortality rates (3.1% vs 6.1%), lower rates of acute respiratory failure (4.3% vs 8.2%), and decreased 30-day unplanned returns to the OR (3.3% vs 6.9%; all $p < 0.05$). Rates of severe sepsis, postoperative stroke, intraoperative aneurysm rupture, and postoperative aneurysm residual were equivalent between the concurrent and nonconcurrent groups (all p values nonsignificant). Mixed-effects models showed that after controlling for procedure type, patient demographics, and clinical indicators, there was no significant difference in acute respiratory failure, severe sepsis, 30-day readmission, postoperative stroke, EBL, length of stay, discharge status, or intraoperative aneurysm rupture between concurrent and nonconcurrent cases. Unplanned return to the OR and 30-day mortality were significantly lower in concurrent cases (odds ratio 0.55, 95% confidence interval 0.31-0.98, $p = 0.0431$, and odds ratio 0.81, $p < 0.001$, respectively), but concurrent cases had significantly longer procedure durations (odds ratio 21.73; $p < 0.001$).

Overall, there was a significant difference in the types of concurrent versus nonconcurrent cases, with more routine/elective cases for less sick patients scheduled in an overlapping fashion. After adjusting for patient demographics, procedure type, and clinical indicators, concurrent cases had longer procedure times, but equivalent patient outcomes, as compared with nonconcurrent vascular neurosurgical procedures ¹⁾.

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Zygourakis CC, Lee J, Barba J, Lobo E, Lawton MT. Performing concurrent operations in academic vascular neurosurgery does not affect patient outcomes. *J Neurosurg*. 2017 Jan 20:1-7. doi: 10.3171/2016.6.JNS16822. [Epub ahead of print] PubMed PMID: 28106498.

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