

Postoperative delirium in spine surgery

Postoperative delirium is a common complication in older patients after **spine surgery**, and there are several perioperative risk factors associated with its development ¹⁾.

A study aims to identify modifiable risk factors in spine surgery. A better understanding thereof would help adapt medical management and surgical strategies to individual risk profiles.

This is a single-center observational study jointly conducted by the departments of neurosurgery, neurology, and anesthesiology at a tertiary care hospital in Germany. All patients aged 60 years and older presenting to the neurosurgery outpatient clinic or ward for elective spine surgery are screened for eligibility. Exclusion criteria include the presence of neurodegenerative or history of psychiatric disease and medication with significant central nervous system activity (eg, antidepressants, antipsychotics, sedatives). Surgical and anesthetic procedures including duration of surgery as the primary endpoint of this study are thoroughly documented. All patients are furthermore evaluated for their preoperative cognitive abilities by a number of tests, including the Consortium to Establish a Registry for Alzheimer's Disease Plus test battery. Physical, mental, and social health and well-being are assessed using the Patient-Reported Outcome Measurement Information System Profile 29 and Hospital Anxiety and Depression Scale. Patients additionally receive a preoperative cerebrovascular ultrasound and structural and functional brain imaging. The immediate postoperative period includes screening for POD using the Nursing Delirium Screening Scale and validation through Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, criteria. We furthermore investigate markers of (neuro)inflammation (eg, interleukins, C-reactive protein, tumor necrosis factor-alpha). Preoperative examinations are repeated 3 months postoperatively to investigate the presence of POCD and its mechanisms. Statistical analyses will compare delirious and nondelirious patients for predictors of immediate (POD) and delayed (POCD) cognitive dysfunction.

This is the first study to prospectively evaluate risk factors for POD and POCD in spine surgery. Recruitment is ongoing, and data collection is estimated to be finished with the inclusion of 200 patients by mid-2020.

The identification of mechanisms, possibly common, underlying POD and POCD would be a major step toward defining effective interventional strategies early in or even before the postoperative period, including the adaptation of surgical strategies to individual risk profiles.

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<https://clinicaltrials.gov/ct2/show/NCT03486288>.

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Adogwa O, Elsamadicy AA, Vuong VD, Fialkoff J, Cheng J, Karikari IO, Bagley CA. Association between baseline cognitive impairment and **postoperative delirium** in elderly patients undergoing surgery for adult spinal deformity. J Neurosurg Spine. 2018 Jan;28(1):103-108. doi: 10.3171/2017.5.SPINE161244. Epub 2017 Nov 10. PubMed PMID: 29125432.

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