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Original Research Article

PERIOPERATIVE COGNITIVE DYSFUNCTION IN ELDERLY PATIENTS: RISK FACTORS, PREVENTION, AND OUTCOMES: PROSPECTIVE OBSERVATIONAL STUDY

Anandh Vellaichamy[1], Gurusanthiya Saravanaperumal[1]

[1]*Consultant Anesthesiologist, Department of Anesthesiology, Kumaran Medical Center, 499/500, near Saravanampatti, Kurumbapalayam SSKulam, Coimbatore, Tamil Nadu, India.*

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Corresponding Author:
Dr. Anandh Vellaichamy,
Consultant Anesthesiologist, Department of Anesthesiology, Kumaran Medical Center, 499/500, near Saravanampatti, Kurumbapalayam SSKulam, Coimbatore, Tamil Nadu, India.
Email: 2k3anand@gmail.com

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ABSTRACT

Background: Perioperative cognitive dysfunction (POCD) is a common postoperative neurocognitive complication among elderly surgical patients and is associated with impaired recovery, prolonged hospitalization, and increased postoperative morbidity. Identification of perioperative risk factors and preventive strategies is essential to improve postoperative outcomes in the aging surgical population. The aim is to evaluate the incidence, perioperative risk factors, preventive measures, and postoperative outcomes associated with POCD in elderly patients undergoing elective major non-cardiac surgery.
Materials and Methods: This prospective observational study was conducted at Kumaran Medical Center, Coimbatore, from March 2025 to February 2026. A total of 220 patients aged ≥65 years undergoing elective major non-cardiac surgery were included. Baseline cognitive assessment was performed preoperatively using the Mini-Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA). Postoperative cognitive evaluation was repeated on postoperative day 3 and day 7. Demographic variables, comorbidities, surgical and anesthetic parameters, postoperative delirium, pain scores, and perioperative complications were analyzed. Multivariate logistic regression analysis was performed to identify independent predictors of POCD.
Results: The incidence of POCD was 24.5% on postoperative day 3 and 12.7% on postoperative day 7. Advanced age, low educational status, diabetes mellitus, prolonged surgery duration, intraoperative hypotension, postoperative delirium, and severe postoperative pain were significantly associated with POCD ($p<0.05$). Patients receiving dexmedetomidine infusion demonstrated lower incidence of postoperative cognitive decline. POCD was associated with prolonged ICU stay, delayed ambulation, and longer hospitalization.
Conclusion: POCD remains a significant postoperative complication in elderly surgical patients. Early identification of high-risk patients and implementation of targeted perioperative preventive strategies may reduce postoperative cognitive decline and improve postoperative recovery and functional outcomes.
Keywords: Perioperative cognitive dysfunction; Elderly patients; Postoperative delirium; Risk factors; Neurocognitive disorders.

INTRODUCTION

Perioperative cognitive dysfunction (POCD), currently categorized under perioperative neurocognitive disorders (PND), is a common neurological complication observed after anesthesia and surgery, particularly among elderly patients. It is characterized by impairment in memory, attention, executive function, information processing, and learning ability occurring days to weeks after surgical procedures.[1] POCD has gained increasing clinical importance because it contributes to delayed recovery, prolonged hospitalization, reduced quality of life, increased healthcare expenditure, and higher postoperative morbidity and mortality.[2]

POCD should be differentiated from postoperative delirium and dementia. Postoperative delirium is an acute fluctuating disturbance in consciousness and attention occurring within hours to days after surgery, whereas POCD represents a more subtle decline in cognitive performance detected using neuropsychological testing. Dementia, in contrast, is a chronic progressive neurodegenerative disorder causing irreversible cognitive decline. Although these conditions may overlap, postoperative delirium has been identified as an important predictor for subsequent POCD and long-term cognitive impairment.[3-9]

The incidence of POCD varies depending on patient age, surgical procedure, anesthetic technique, and cognitive assessment tools used. Previous studies have reported that approximately 20–40% of elderly patients develop early POCD following major non-cardiac surgery, while persistent cognitive decline may occur in 10–15% of patients after several months.[2,3] With the rapid growth of the geriatric population and increasing numbers of elderly individuals undergoing surgery, POCD has become a major perioperative concern worldwide.[1]

The exact pathophysiology of POCD remains incompletely understood and is believed to be multifactorial. Neuroinflammation, blood-brain barrier dysfunction, oxidative stress, cerebral hypoperfusion, neuronal apoptosis, and accumulation of inflammatory mediators are considered major mechanisms contributing to postoperative cognitive decline.[9] Recent studies have also demonstrated associations between POCD and biomarkers such as Tau protein, β-amyloid, S100β protein, and inflammatory cytokines.[6] Surgical stress and anesthetic exposure may further aggravate preexisting neurodegenerative changes in vulnerable elderly individuals.[7]

Several perioperative risk factors for POCD have been identified in the literature. Advanced age, low educational status, diabetes mellitus, hypertension, chronic pain, prolonged surgery duration, intraoperative hypotension, hypoxia, postoperative pain, and preexisting mild cognitive impairment are among the most consistently reported predictors.3–6 Chronic preoperative pain has been shown to independently increase the risk of early POCD in elderly orthopedic patients.[4] Similarly, prolonged laparoscopic surgery and intraoperative oxygen desaturation have been identified as significant contributors to postoperative cognitive decline.[5]

Current preventive strategies focus on minimizing perioperative neuroinflammation and optimizing cerebral perfusion. Dexmedetomidine infusion, multimodal analgesia, delirium prevention bundles, adequate oxygenation, depth of anesthesia monitoring, and enhanced recovery protocols have shown promising results in reducing POCD incidence.10 Despite these advances, existing literature shows considerable heterogeneity in diagnostic criteria, neuropsychological assessment methods, follow-up duration, and perioperative management protocols.[2] Furthermore, data from Indian tertiary care centers regarding POCD in elderly patients remain limited.

Therefore, the present prospective observational study was undertaken at Kumaran Medical Center, Coimbatore, to evaluate the incidence, perioperative risk factors, preventive strategies, and postoperative outcomes of POCD among elderly patients undergoing elective non-cardiac surgery.

MATERIALS AND METHODS

Study Design and Setting: This prospective observational study was conducted in the Department of Anesthesiology at Kumaran Medical Center, Coimbatore, Tamil Nadu, India. The study aimed to evaluate the incidence, perioperative risk factors, preventive strategies, and postoperative outcomes associated with perioperative cognitive dysfunction (POCD) among elderly patients undergoing elective major non-cardiac surgery.

The study protocol was reviewed and approved by the Institutional Ethics Committee prior to commencement of patient enrollment. Written informed consent was obtained from all participants or their legally authorized representatives after explaining the nature and purpose of the study in their native language. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.

Study Duration: The study was conducted over a period of 12 months from March 2025 to February 2026.

Study Population and Sample Size: The study population consisted of elderly patients aged 65 years and above who were scheduled for elective major non-cardiac surgery under general anesthesia or regional anesthesia. Sample size was calculated based on previous literature reporting an estimated incidence of POCD ranging from 20% to 30% among elderly surgical patients. Considering an anticipated POCD prevalence of 20%, confidence level of 95%, and margin of error of 5%, the minimum required sample size was calculated using the formula:

$$n = \frac{Z^2pq}{d^2}$$

Where:

Z=1.96 for 95% confidence interval

p=20%

q=1-p

d=5%

The calculated minimum sample size was 196 patients. To compensate for possible dropouts and incomplete follow-up, a total of 220 patients were enrolled consecutively during the study period.

Inclusion Criteria

Patients who met the following requirements were included in the research:

1. Age ≥65 years.

2. Patients undergoing elective major non-cardiac surgery.
3. American Society of Anesthesiologists (ASA) physical status I–III.
4. Patients able to understand and respond to cognitive assessment questionnaires.
5. Patients willing to provide informed written consent.

Exclusion Criteria

Patients meeting any of the following criteria were excluded:

1. Preexisting diagnosis of dementia or Alzheimer's disease.
2. History of psychiatric illness or severe depression.
3. Severe hearing, speech, or visual impairment interfering with cognitive testing.
4. Emergency surgical procedures.
5. History of cerebrovascular accident within the previous six months.
6. Severe hepatic or renal dysfunction.
7. Patients admitted to intensive care unit prior to surgery.
8. Alcohol or substance abuse.
9. Inability to complete postoperative cognitive assessment.

Preoperative Assessment and Cognitive Evaluation Tools: All eligible patients underwent a detailed preoperative evaluation one day prior to surgery. Baseline demographic and clinical characteristics including age, gender, educational status, body mass index (BMI), smoking history, alcohol consumption, comorbid illnesses, current medications, and American Society of Anesthesiologists (ASA) physical status were recorded for all participants. A comprehensive review of routine preoperative investigations was performed, including complete blood count, renal function tests, liver function tests, serum electrolyte analysis, electrocardiography, and chest radiography, to assess the overall clinical condition and perioperative fitness of the patients.

Cognitive Assessment Tools

Baseline cognitive function was assessed preoperatively using the following standardized neurocognitive instruments:

1. Mini-Mental State Examination (MMSE): The MMSE is a widely used 30-point questionnaire assessing orientation, attention, memory, language, and visuospatial skills. Scores below 24 were considered suggestive of baseline cognitive impairment.

2. Montreal Cognitive Assessment (MoCA): The MoCA test evaluates executive function, memory, attention, abstraction, visuospatial ability, and language. A score below 26 was considered indicative of mild cognitive impairment.

Both assessments were administered by trained investigators in a quiet environment to ensure consistency.

Perioperative Variables Collected: Detailed perioperative data were collected for all enrolled patients.

Demographic Variables: Age, Sex, Educational status, BMI, Smoking history, Alcohol intake

Clinical Variables: Diabetes mellitus, Hypertension, Coronary artery disease, Chronic kidney disease, Chronic obstructive pulmonary disease, Preexisting mild cognitive impairment, Chronic pain disorders

Surgical Variables: Type of surgery, Duration of surgery, Estimated blood loss, Requirement of blood transfusion, ICU admission after surgery

Anesthetic Variables: Type of anesthesia (general/regional/combined), Anesthetic agents used, Intraoperative opioid administration, Dexmedetomidine infusion, Intraoperative hypotension episodes, Mean arterial pressure fluctuations, Oxygen saturation levels, Intraoperative hypoxia, Duration of anesthesia

Postoperative Variables: Pain scores using Visual Analog Scale (VAS), Postoperative opioid consumption, Occurrence of postoperative delirium, Mechanical ventilation duration, ICU stay duration, Length of hospital stay, Postoperative complications

Methods for Assessment of Perioperative Cognitive Dysfunction and Postoperative Outcomes

Postoperative cognitive assessment was conducted on postoperative day 3 and postoperative day 7 using the same MMSE and MoCA tools administered preoperatively.

Definition of POCD

POCD was defined as:

- A decline of ≥2 points in MMSE score from baseline, and/or
- A significant decline in MoCA score compared to preoperative values.

Assessment of Postoperative Delirium

Postoperative delirium was screened using the Confusion Assessment Method (CAM) during the postoperative period.

Functional Outcome Assessment

Postoperative outcomes evaluated included:

- Duration of hospital stay, ICU admission and duration, Delayed ambulation, Postoperative complications, Mortality during hospital stay, Functional recovery status at discharge

Data Collection Procedure: Over the course of the trial, eligible patients were recruited one after the other. Trained anesthesiology residents conducted preoperative cognitive testing the day before the procedure.

Intraoperative data were recorded by the attending anesthesiologist using standardized case record forms. Postoperative cognitive assessments were conducted by investigators blinded to intraoperative variables to minimize assessment bias.

All collected data were entered into a structured electronic database for analysis. Patient confidentiality was maintained throughout the study.

Outcome Measures

Primary Outcome

- Incidence of perioperative cognitive dysfunction among elderly surgical patients.

Secondary Outcomes

1. Identification of perioperative risk factors associated with POCD.
2. Evaluation of preventive perioperative measures reducing POCD incidence.
3. Association between POCD and postoperative delirium.
4. Postoperative complications associated with POCD.
5. Length of ICU stay and hospital stay.
6. Functional recovery outcomes among POCD patients.

Statistical Analysis: Data were analyzed using SPSS software version 26.0 (IBM Corp., Armonk, NY, USA). Continuous variables were expressed as mean ± standard deviation or median with interquartile range, while categorical variables were presented as frequencies and percentages. Independent sample t-test was used for comparison of continuous variables, and Chi-square test or Fisher's exact test was used for categorical variables. Repeated measures analysis was performed for serial cognitive assessment scores. Variables with $p<0.10$ on univariate analysis were included in multivariate logistic regression to identify independent predictors of POCD. Odds ratios (OR) with 95% confidence intervals (CI) were calculated, and a p-value <0.05 was considered statistically significant.

RESULTS

A total of 220 elderly patients undergoing elective major non-cardiac surgery were enrolled in the study during the study period from March 2025 to February 2026. All patients completed preoperative and postoperative cognitive assessments. The incidence of perioperative cognitive dysfunction (POCD) on postoperative day 3 was observed in 54 patients (24.5%), while persistent POCD on postoperative day 7 was identified in 28 patients (12.7%).

Baseline Demographic and Clinical Characteristics: The mean age of the study population was 70.2 ± 5.6 years. Patients who developed POCD were significantly older compared to those without POCD. Low educational status, diabetes mellitus, and chronic pain disorders were more commonly observed among patients with POCD.

Table 1: Baseline Demographic and Clinical Characteristics of Study Participants

Variables	POCD Group (n=54)	Non-POCD Group (n=166)	p-value
Age (years), mean ± SD	74.2 ± 5.8	68.9 ± 4.6	<0.001
Male gender, n (%)	31 (57.4%)	88 (53.0%)	0.61
BMI (kg/m²), mean ± SD	26.8 ± 3.4	25.9 ± 3.1	0.12
Smoking history, n (%)	18 (33.3%)	34 (20.5%)	0.05
Alcohol intake, n (%)	12 (22.2%)	28 (16.9%)	0.39
Diabetes mellitus, n (%)	34 (62.9%)	58 (34.9%)	0.002
Hypertension, n (%)	29 (53.7%)	67 (40.4%)	0.09
Coronary artery disease, n (%)	14 (25.9%)	24 (14.5%)	0.06
Chronic pain disorders, n (%)	21 (38.8%)	32 (19.3%)	0.004
Low educational status, n (%)	38 (70.3%)	59 (35.5%)	<0.001
Preexisting mild cognitive impairment, n (%)	17 (31.4%)	18 (10.8%)	0.001

Incidence of POCD: Among the 220 study participants, 54 patients (24.5%) developed POCD on postoperative day 3. Improvement in cognitive scores was observed in several patients during follow-up, and persistent POCD on postoperative day 7 was observed in 28 patients (12.7%).

Surgical and Anesthetic Variables: Patients who developed POCD had significantly longer surgical duration, increased incidence of intraoperative hypotension, greater blood loss, and higher rates of postoperative ICU admission.

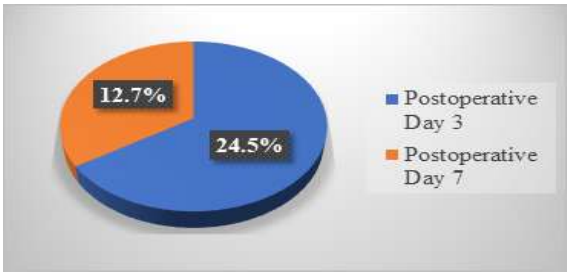

Figure 1. Incidence of Perioperative Cognitive Dysfunction.

Table 2: Comparison of Surgical and Anesthetic Variables

Variables	POCD Group (n=54)	Non-POCD Group (n=166)	p-value
Duration of surgery (hours), mean ± SD	3.8 ± 1.1	2.6 ± 0.9	<0.001
Duration of anesthesia (hours), mean ± SD	4.2 ± 1.0	3.0 ± 0.8	<0.001
Estimated blood loss (mL), mean ± SD	520 ± 180	340 ± 140	<0.001
Blood transfusion required, n (%)	19 (35.1%)	28 (16.9%)	0.006
Intraoperative hypotension, n (%)	29 (53.7%)	41 (24.7%)	<0.001
Intraoperative hypoxia, n (%)	14 (25.9%)	18 (10.8%)	0.007
ICU admission after surgery, n (%)	22 (40.7%)	29 (17.5%)	0.001
General anesthesia, n (%)	39 (72.2%)	101 (60.8%)	0.14
Dexmedetomidine infusion used, n (%)	11 (20.3%)	62 (37.3%)	0.02

Postoperative Variables and Outcomes: Postoperative delirium, higher pain scores, prolonged ICU stay, and increased hospital stay were significantly associated with POCD.

Table 3: Postoperative Variables and Outcomes

Variables	POCD Group (n=54)	Non-POCD Group (n=166)	p-value
VAS pain score, mean ± SD	6.8 ± 1.2	4.9 ± 1.0	<0.001
Postoperative opioid consumption (mg), mean ± SD	18.6 ± 5.4	12.2 ± 4.7	<0.001
Postoperative delirium, n (%)	24 (44.4%)	16 (9.6%)	<0.001
Mechanical ventilation duration (hours), mean ± SD	10.4 ± 4.1	5.2 ± 2.8	<0.001
ICU stay duration (days), mean ± SD	3.4 ± 1.5	1.6 ± 0.9	<0.001
Length of hospital stay (days), mean ± SD	8.2 ± 2.4	5.6 ± 1.8	<0.001
Postoperative complications, n (%)	19 (35.1%)	24 (14.5%)	0.002

Cognitive Assessment Scores: Both MMSE and MoCA scores showed significant postoperative decline among patients who developed POCD.

Table 4: Comparison of Cognitive Assessment Scores

Cognitive Assessment	Preoperative	POD 3	POD 7	p-value
MMSE score (POCD group)	28.1 ± 1.2	23.4 ± 1.8	25.1 ± 1.6	<0.001
MMSE score (Non-POCD group)	28.4 ± 1.1	27.9 ± 1.0	28.1 ± 0.9	0.08
MoCA score (POCD group)	26.9 ± 1.5	21.6 ± 2.0	23.8 ± 1.7	<0.001
MoCA score (Non-POCD group)	27.1 ± 1.3	26.5 ± 1.2	26.8 ± 1.1	0.10

Multivariate Logistic Regression Analysis: Multivariate logistic regression analysis identified advanced age, prolonged surgery duration, intraoperative hypotension, postoperative delirium, severe postoperative pain, and diabetes mellitus as independent predictors of POCD.

Table 5: Independent Predictors of POCD

Risk Factors	Odds Ratio (OR)	95% Confidence Interval	p-value
Age >75 years	2.8	1.5 – 5.1	0.001
Diabetes mellitus	1.9	1.1 – 3.4	0.02
Surgery duration >3 hours	2.4	1.3 – 4.5	0.004
Intraoperative hypotension	2.1	1.2 – 3.8	0.01
Severe postoperative pain	2.5	1.4 – 4.3	0.003
Postoperative delirium	3.6	1.9 – 6.7	<0.001
Dexmedetomidine use	0.48	0.24 – 0.91	0.02

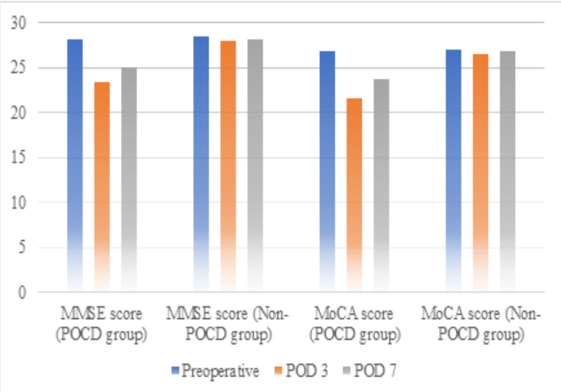

Figure 2: Perioperative Changes in MMSE and MoCA Cognitive Assessment Scores Among POCD and Non-POCD Groups

Overall, the present study demonstrated that perioperative cognitive dysfunction is a common postoperative complication among elderly patients undergoing major non-cardiac surgery. Advanced age, prolonged surgery, intraoperative hemodynamic instability, diabetes mellitus, postoperative delirium, and severe postoperative pain were significant predictors of POCD, whereas dexmedetomidine infusion appeared to have a protective effect against postoperative cognitive decline.

DISCUSSION

The present prospective observational study demonstrated that perioperative cognitive dysfunction (POCD) remains a frequent and clinically significant postoperative complication among elderly patients undergoing major non-cardiac surgery. The incidence of POCD observed in our study was 24.5% on postoperative day 3 and 12.7% on postoperative day 7, which is consistent with previously published literature reporting early postoperative cognitive decline in approximately 20–40% of elderly surgical patients.1,2 The reduction in incidence by postoperative day 7 suggests partial cognitive recovery in some patients; however, a considerable proportion continued to exhibit persistent cognitive impairment during the early postoperative period.

Aging was identified as one of the strongest predictors of POCD in the present study. Patients older than 75 years demonstrated significantly higher odds of postoperative cognitive decline. Similar findings have been reported by Brodier et al., who emphasized the vulnerability of elderly individuals due to reduced neuronal plasticity, impaired cerebral autoregulation, and diminished cognitive reserve.[3] Larsen et al. further highlighted the protective role of cognitive reserve, demonstrating that patients with higher educational attainment and preserved baseline cognition experienced lower rates of delayed neurocognitive recovery.[7] In our study, lower educational status was significantly associated with POCD, supporting the hypothesis that cognitive reserve may mitigate perioperative neurocognitive injury.

Preexisting mild cognitive impairment (MCI) was also strongly associated with postoperative cognitive decline. Somnuke et al. reported that elderly patients with baseline MCI had substantially increased susceptibility to postoperative neurocognitive complications, likely due to preexisting neurodegenerative changes and impaired compensatory neural mechanisms.[1] These results highlight the significance of a thorough preoperative cognitive evaluation for senior surgery candidates.

Among perioperative factors, prolonged surgical duration, intraoperative hypotension, and intraoperative hypoxia emerged as significant independent predictors of POCD. These observations are consistent with the study by Liu et al., who demonstrated that prolonged laparoscopic surgery and oxygen desaturation significantly increased postoperative cognitive impairment among elderly patients.5 Cerebral hypoperfusion and reduced oxygen delivery during surgery may contribute to neuronal injury, neuroinflammation, and disruption of the blood-brain barrier. Wang et al. further demonstrated associations between impaired cerebral oxygen saturation and postoperative neurocognitive dysfunction, suggesting that perioperative cerebral oxygen monitoring may help identify high-risk patients.[6]

Postoperative delirium showed a particularly strong association with POCD in our cohort. Patients who developed delirium had significantly higher rates of persistent postoperative cognitive decline. Brown et al. similarly reported that postoperative delirium after cardiac surgery was associated with long-term subjective cognitive deterioration and impaired quality of life.[8] Delirium and POCD likely share overlapping pathophysiological mechanisms involving systemic inflammation, neurotransmitter imbalance, and neuronal network dysfunction.9 These findings underscore the importance of early recognition and prevention of postoperative delirium in elderly patients.

Pain and opioid exposure also appeared to influence postoperative cognitive outcomes. Patients with higher postoperative pain scores demonstrated significantly increased POCD incidence. Chronic pain and uncontrolled postoperative pain have been implicated in central neuroinflammatory activation and cognitive dysfunction. Zhang et al. demonstrated that chronic preoperative pain independently increased the risk of early POCD among elderly orthopedic patients.[4] Excessive perioperative opioid administration may further exacerbate neurocognitive impairment through sedation, sleep disturbance, and altered neurotransmission.

An important finding of the present study was the apparent protective effect of dexmedetomidine. Patients receiving dexmedetomidine infusion exhibited lower rates of postoperative cognitive decline. Shi et al. similarly demonstrated that dexmedetomidine improved early postoperative neurocognitive outcomes in elderly thoracic surgical patients.[10] Dexmedetomidine possesses anti-inflammatory, sympatholytic, and neuroprotective properties, which may attenuate neuroinflammation and preserve cerebral homeostasis during the perioperative period. These findings support growing evidence favoring multimodal anesthetic strategies that minimize neurocognitive injury.

The underlying pathophysiology of POCD remains complex and multifactorial. Experimental and clinical evidence suggests that systemic inflammatory responses triggered by surgical trauma may lead to neuroinflammation, microglial activation, oxidative stress, and synaptic dysfunction.[9] Yang et al. identified significant cerebrospinal fluid proteomic alterations in elderly surgical patients with POCD, suggesting ongoing neurodegenerative and inflammatory processes following surgery.[13] Similarly, Safran et al. demonstrated correlations between POCD and biomarkers such as S100β protein and inflammatory cytokines, further supporting the role of neuronal injury and systemic inflammation in postoperative neurocognitive disorders.[11]

Standardization of POCD diagnosis remains a challenge in contemporary literature. Evered et al. emphasized the need for uniform nomenclature and diagnostic criteria under the broader concept of perioperative neurocognitive disorders.[12] Variability in neuropsychological testing methods, timing of assessment, and follow-up duration contributes to significant heterogeneity among studies.[2] In the present study, both MMSE and MoCA were utilized to improve sensitivity for detecting postoperative cognitive decline, particularly executive dysfunction and subtle memory impairment.

Importantly, POCD was associated with poorer postoperative outcomes in our cohort, including prolonged ICU stay, delayed ambulation, increased hospital stay, and slower functional recovery. Suraarunsumrit et al., in a recent meta-analysis, similarly reported that POCD was associated with increased postoperative morbidity, mortality, and long-term decline in quality of life.[2] These findings highlight the substantial healthcare burden imposed by perioperative neurocognitive disorders, particularly in aging populations undergoing major surgery.

The present study adds valuable data from an Indian tertiary care center, where literature regarding POCD remains limited. Early identification of high-risk patients, optimization of perioperative hemodynamics, adequate pain control, delirium prevention strategies, and neuroprotective anesthetic techniques may help reduce the incidence and severity of POCD in elderly surgical patients.

CONCLUSION

Perioperative cognitive dysfunction remains a significant postoperative complication among elderly patients undergoing major non-cardiac surgery and is associated with increased morbidity, delayed recovery, prolonged hospitalization, and poorer functional outcomes. Advanced age, low educational status, diabetes mellitus, prolonged surgery duration, intraoperative hypotension, postoperative pain, and delirium were identified as major independent predictors of POCD. Preventive perioperative strategies, particularly optimization of hemodynamic stability, adequate analgesia, delirium prevention, and dexmedetomidine-based anesthetic approaches, may reduce postoperative cognitive decline. Early perioperative cognitive screening and targeted multidisciplinary interventions are essential to improve surgical outcomes and quality of care in the growing geriatric surgical population.

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