Section: Psychiatry

Original Research Article

INTERSECTING PSYCHIATRY AND PERIOPERATIVE MEDICINE: COMPLICATION PROFILES IN ELECTIVE SURGICAL PATIENTS ON LONG-TERM ANTIPSYCHOTICS

Pruthvi Reddy Muddasani[1], Janagam Sheetal Reddy[2]

[1]Associate Professor, Department of Psychiatry, Neelima institute of Medical Sciences, Secunderabad, Telangana, India
[2]Assistant professor, Department of Anesthesia, Chalmeda Anand Rao Institute of Medical Sciences, Telangana, India.

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Corresponding Author:
Dr. Pruthvi Reddy Muddasani,
Associate Professor, Department of Psychiatry, Neelima institute of Medical Sciences, Secunderabad, Telangana, India.
Email: pruthvireddy.muddasani@gmail.com

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ABSTRACT

Background: Patients receiving long-term antipsychotic therapy present unique perioperative challenges due to autonomic, cardiovascular, and neurocognitive effects of psychotropic medications. Evidence from low- and middle-income settings remains limited.

Materials and Methods: A prospective observational cohort study was conducted in the Department of Psychiatry over 18 months (Jan 2024–June 2025). Adult patients (18–65 years) on continuous antipsychotic therapy for ≥6 months undergoing elective surgery were enrolled. Perioperative complications were systematically recorded.

Results: Among 220 participants, 58 patients (26.4%) developed at least one perioperative complication. Intraoperative hemodynamic instability was the most frequent event (15.5%), followed by postoperative delirium (10.0%), most commonly within the first 24 hours. Clinically significant arrhythmias occurred in 4.1%. A greater number of complications were observed among patients receiving general anesthesia. Median hospital stay was 5 days (IQR 4–7).

Conclusion: Perioperative complications are common among patients on long-term antipsychotic therapy undergoing elective surgery. Structured perioperative planning and interdisciplinary coordination are essential to mitigate risk.

Keywords: Antipsychotics; Perioperative complications; Elective surgery; Delirium; Hemodynamic instability.

INTRODUCTION

Patients receiving long-term antipsychotic therapy increasingly present for elective surgical procedures, reflecting the rising recognition and treatment of severe mental illness across the life course, including in India's expanding urban and peri-urban health systems. In perioperative medicine, this cohort requires particular attention because antipsychotics act on multiple receptor systems—dopaminergic, serotonergic, adrenergic, histaminergic, and muscarinic pathways—creating a pharmacologic "background" that can meaningfully modify anesthetic requirements, physiological responses to surgical stress, and recovery trajectories.[1,2]

A central concern is cardiometabolic vulnerability. Many antipsychotics are associated with weight gain, dyslipidemia, glucose intolerance, and broader cardiometabolic risk, which may coexist with tobacco exposure, limited access to preventive care, and delayed presentation for surgical evaluation in low- and middle-income settings.[3] These chronic risks intersect with acute perioperative hazards. Antipsychotic-associated autonomic effects—particularly α-adrenergic blockade—can predispose to orthostatic symptoms and intraoperative hypotension, potentially complicating induction and vasopressor selection.[1,2] In parallel, several agents can prolong ventricular repolarization, raising concern for perioperative QTc prolongation in the presence of anesthetic drugs, perioperative sympathetic surges, electrolyte shifts, and concomitant antiemetics or antimicrobials that share similar electrophysiologic liabilities.[2,4,5]

Neurological and thermoregulatory considerations are similarly important. Dopamine antagonism can alter central temperature regulation and contribute to rigidity, sedation, and impaired airway protective reflexes, which may increase aspiration risk and complicate postoperative delirium assessments (2). Perioperative interruption of antipsychotics may precipitate withdrawal phenomena, agitation, insomnia, or rebound psychosis, while continuation may increase the probability of drug–drug interactions with opioids, sedatives, and antiemetics, underscoring the need for structured medication reconciliation and coordinated anesthesia–psychiatry planning.[1,6] Although consensus guidance is available, recommendations are often based on limited perioperative evidence and may not capture Indian practice variability across public and private surgical pathways.[1,6]

This study was undertaken to characterize perioperative complications and inform context-appropriate risk stratification and medication-management strategies for patients on long-term antipsychotic therapy undergoing elective surgery.

MATERIALS AND METHODS

Study design and setting: This study was conducted as a prospective observational cohort study in the Department of Psychiatry, Neelima institute of Medical Sciences, Secunderabad, Telangana, over a period of 18 months from January 2024 to June 2025. The study population comprised adult patients on long-term antipsychotic therapy undergoing elective surgical procedures requiring anesthesia during the study period.

Eligibility criteria: Patients aged 18–65 years who had been on continuous antipsychotic medication for at least six months, undergoing elective surgery under general, regional, or combined anesthesia, and classified as ASA physical status I–III were included after obtaining written informed consent. Patients undergoing emergency or trauma surgery, pregnant or lactating women, those receiving lithium therapy or with recent clozapine initiation or dose escalation within four weeks, individuals with congenital long-QT syndrome, pacemakers or implantable cardioverter-defibrillators, sustained ventricular arrhythmias, end-stage renal disease, severe hepatic failure, or acute intoxication or uncontrolled substance withdrawal were excluded.

Sample size and sampling technique

The sample size was calculated to estimate the incidence of perioperative complications in patients on long-term antipsychotic therapy. Assuming a complication rate of 25%, with a 95% confidence level and 6% absolute precision, the minimum sample size required was 200 patients. After accounting for an anticipated attrition rate of approximately 10%, the final sample size was fixed at 220 participants, which was considered feasible for the study setting and duration. A consecutive sampling method was employed, and eligible patients were identified through Psychiatry department records and elective surgery schedules.

Exposure and outcome measures

Long-term antipsychotic therapy was defined as continuous use of antipsychotic medication for six months or more prior to surgery. Details regarding drug type, formulation, dose, and duration were recorded, with dose conversion into chlorpromazine equivalents where feasible. Individual components of the composite outcome were not mutually exclusive, and a single patient could experience more than one complication.

The primary outcome was the occurrence of a composite perioperative complication, including intraoperative hemodynamic instability (mean arterial pressure <65 mmHg or vasopressor requirement), clinically significant arrhythmias, postoperative delirium within 48 hours assessed using the Confusion Assessment Method; unplanned transfer to a high-dependency or intensive care unit within 24 hours of surgery, or postoperative respiratory complications. Secondary outcomes included postoperative QTc prolongation, postoperative nausea and vomiting, length of PACU and hospital stay, and 30-day readmission.

Data collection and analysis: Data was collected during the preoperative, intraoperative, and postoperative periods using a structured proforma. Analysis was primarily descriptive, with exploratory univariate comparisons performed to assess associations between clinical variables and perioperative complications. A p-value <0.05 was considered statistically significant.

Ethical approval was obtained from the Institutional Ethics Committee, and patient confidentiality was strictly maintained.

RESULTS

A total of 220 patients on long-term antipsychotic therapy undergoing elective surgery were included in the final analysis. The mean age of the cohort was 42.8 ± 11.2 years, with a slight male predominance. Atypical antipsychotics were more commonly prescribed than typical agents, and most patients were classified as ASA physical status II.

Table 1: Baseline demographic and clinical characteristics (n = 220)

Variable	Value
Age (years), mean ± SD	42.8 ± 11.2
Male sex, n (%)	124 (56.4)
Duration of antipsychotic use ≥2 years, n (%)	146 (66.4)
Atypical antipsychotic use, n (%)	158 (71.8)
Depot formulation, n (%)	62 (28.2)
ASA I / II / III, n	48 / 132 / 40

The most common surgical categories were general surgery and orthopaedics. General anaesthesia was the predominant anaesthetic technique.

Table 2: Surgical and anaesthetic profile

Variable	n (%)
General surgery	82 (37.3%)
Orthopaedic surgery	64 (29.1%)
Other elective surgeries	74 (33.6%)
General anaesthesia	136 (61.8%)
Regional / combined	84 (38.2%)

Overall, 58 patients (26.4%) developed at least one perioperative complication. Intraoperative haemodynamic instability was the most frequent event, followed by postoperative delirium. Perioperative complications were more frequent among patients receiving general anesthesia compared to regional/combined techniques (33.1% vs 15.5%, p = 0.004).

Individual complications were not mutually exclusive; some patients experienced more than one perioperative event.

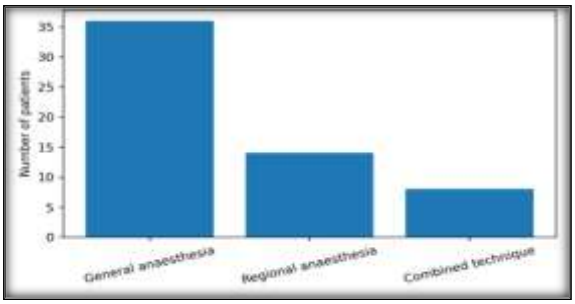

Figure 1: Anesthetic technique used

Table 3: Perioperative complications (primary outcome)

Complication	n (%)
Haemodynamic instability	34 (15.5%)
Postoperative delirium	22 (10%)
Clinically significant arrhythmia	9 (4.1%)
Respiratory complications	11 (5%)
Any composite complication	58 (26.4%)
Unplanned ICU transfer	16 (7.3%)
30-day readmission	6 (2.7%)

Among the 34 patients with hemodynamic instability, 21 required vasopressor support while 13 had transient hypotension responsive to fluid therapy. Postoperative QTc prolongation ≥500 ms was observed in 6.4%, while resource utilization outcomes remained modest. Complications were not mutually exclusive, and some patients experienced more than one perioperative event.

Table 4: Secondary outcomes

Outcome	n (%)
QTc ≥500 ms	14 (6.4%)
PONV requiring rescue therapy	38 (17.3%)
Unplanned ICU/HDU transfer	16 (7.3%)
Median hospital stay (days), IQR	5 (4–7)

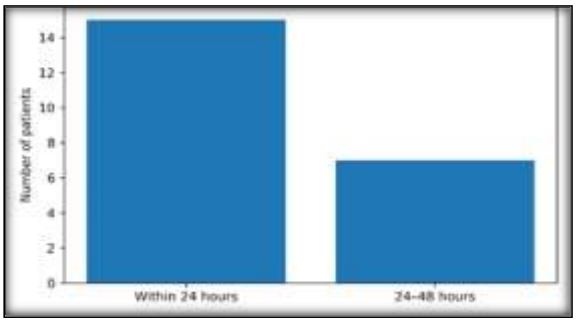

Figure 2: Timing of onset of post-operative delirium

DISCUSSION

Patients receiving long-term antipsychotic therapy represent a clinically vulnerable population in the perioperative setting because of chronic psychotropic exposure, associated cardiometabolic burden, and altered autonomic and neurocognitive responses to surgical stress. The present study was undertaken to characterize perioperative complications in this group within an Indian tertiary-care context, where psychiatric comorbidity often coexists with delayed surgical presentation and heterogeneous perioperative practices.

In the present cohort, the mean age was 42.8 years with a male predominance (56.4%), a demographic pattern comparable to surgical cohorts with severe mental illness reported internationally. Tsai et al. reported a mean age of approximately 44 years with male representation exceeding 55% among patients with schizophrenia undergoing major surgery.[7] Atypical antipsychotics constituted the majority of prescriptions in our study (71.8%), reflecting contemporary prescribing trends and mirroring observations by De Hert et al., who documented second-generation antipsychotic use in over two-thirds of treated patients in clinical practice.[8]

The overall incidence of composite perioperative complications in the present study was 26.4%. This is consistent with prior reports demonstrating increased perioperative risk among patients with chronic psychotic disorders. In a large population-based surgical study, Tsai et al. observed postoperative complication rates ranging from 24% to 30% in patients with schizophrenia, depending on surgical severity.[7] Intraoperative hemodynamic instability was the most frequent complication in our cohort (15.5%), a finding that aligns with the known α-adrenergic antagonism and autonomic dysregulation associated with antipsychotic therapy. Walsh et al. demonstrated that even brief periods of intraoperative hypotension (mean arterial pressure <65 mmHg) were independently associated with adverse postoperative outcomes in general surgical populations, underscoring the clinical relevance of this finding.[9]

Postoperative delirium was observed in 10% of patients, with most cases occurring within the first 24 hours. This incidence is comparable to that reported by Inouye et al., who described delirium rates of 9–15% in medically and surgically hospitalized adults, with higher vulnerability in those with baseline neuropsychiatric illness.[10] The temporal clustering of delirium early in the postoperative period observed in our study supports the hypothesis that acute neurochemical perturbations, anesthetic exposure, and antipsychotic–anesthetic interactions play a contributory role.

Clinically significant arrhythmias occurred in 4.1% of patients, while QTc prolongation ≥500 ms was documented in 6.4%. These findings are concordant with pharmacoepidemiologic evidence linking antipsychotic exposure to ventricular repolarization abnormalities. Ray et al. reported an approximately two-fold increase in sudden cardiac death among current users of both typical and atypical antipsychotics, particularly at higher doses.[11] Although malignant arrhythmias were uncommon in our cohort, the observed QTc changes reinforce the need for perioperative electrocardiographic vigilance.

Limitations

This study was conducted at a single center, which may limit generalizability. The observational design precludes causal inference, and antipsychotic serum levels were not measured. Additionally, some secondary outcomes relied on routine clinical documentation, introducing potential measurement variability.

CONCLUSION

This prospective observational study demonstrates that patients on long-term antipsychotic therapy undergoing elective surgery experience a clinically meaningful burden of perioperative complications, predominantly hemodynamic instability and postoperative delirium. Although major arrhythmias were infrequent, subclinical QTc prolongation and early neurocognitive disturbances were notable. These findings underscore the importance of meticulous preoperative assessment, vigilant intraoperative monitoring, and early postoperative surveillance in this vulnerable population. Integration of psychiatric history into perioperative risk stratification may improve patient safety and optimize surgical outcomes.

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