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Original Research Article

A Retrospective Study on Patterns of Preanesthetic Usage in Surgical Branches at a Tertiary Care Hospital

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Abstract

Background and Objectives: Preanesthetic medications are administered prior to surgical procedures to ensure patient comfort and mitigate the adverse effects of anesthesia. These medications play a crucial role in alleviating the stress and apprehension associated with surgery, thereby facilitating the surgical process. Investigating the patterns of preanesthetic medication usage provides valuable insights into contemporary trends and identifies avenues for enhancement. This study aimed to evaluate the utilization patterns of preanesthetic medications across different surgical specialties within a tertiary care hospital.

Materials and Methods: A cross-sectional study was conducted which retrospectively gathered data from inpatient records of individuals who underwent surgeries within various departments a tertiary care hospital in India. Collected data were subjected to analysis using SPSS software version 19

Results: A comprehensive analysis of 567 inpatient records was undertaken. Among the preanesthetic agents employed, alprazolam emerged as the most prevalent choice. In terms of gastroprotective medications, pantoprazole was the most frequently used agent. Notably, ondansetron stood as the dominant antiemetic.

Conclusion: The study contributes to a deeper understanding of contemporary preanesthetic medication trends within diverse surgical specialties. Alprazolam, pantoprazole, and ondansetron surfaced as the prevailing preanesthetic drugs employed.

Keywords: Preanesthetic Medication, Alprazolam, Pantoprazole, Antiemetics.

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Introduction

Over 200 million major surgical procedures are conducted globally each year [1,2]. Preanesthetic medications constitute a vital component of the anesthesia process, serving to enhance safety and minimize discomfort [3]. These medications are typically administered to mitigate adverse events associated with general anesthesia, alleviate anxiety and apprehension, induce amnesia, and complement the analgesic effects of anesthetics [4]. The choice of preanesthetic medications is contingent upon the patient's clinical profile and the nature and duration of the surgical procedure. The administration of preanesthetic medications is linked to various outcomes, including the duration of postoperative recovery, analgesia requirements post-surgery, and hospital stay [5]. Pharmacological agents encompassing benzodiazepines, opioid analgesics, anticholinergics, H2 receptor blockers, proton-pump inhibitors, and gastrokinetic drugs are commonly employed as preanesthetic agents [6]. Despite the significance of this practice, limited research exists concerning the utilization patterns of preanesthetic medications in India. Thus, the present study was undertaken with the aim of elucidating the prevailing pattern of preanesthetic medication usage across various surgical specialties. The primary objective of this study was to comprehensively evaluate the pattern of preanesthetic medication employed within diverse surgical specialties at a tertiary care hospital.

Material & Methods

In this cross-sectional study, data were retrospectively gathered from the inpatient records of individuals who underwent surgeries and received preanesthetic medication within various surgical departments. A predesigned pro forma was employed to collect information concerning demographic attributes, departmental categorization, diagnoses, and the nature of preanesthetic medication administered.

The minimum sample size was calculated using the formula:

$n = Z^2pq/d^2$
where:
- n represents the minimum sample size,
- p signifies prevalence,
- q is calculated as 1 - p,
- d is absolute precision,
- Z corresponds to 1.96 for a 95% confidence interval.

A sample size of 384 was determined, yielding an 80% statistical power and a 5% margin of error. The collected data were subjected to analysis utilizing SPSS software version 22. Categorical data were presented as percentages, while continuous data were expressed as mean values along with their respective standard deviations.

Results

An examination was conducted on a comprehensive cohort of 567 preanesthetic records for analysis within the context of medical sciences. The gathered data revealed a calculated average age of 42.87 ± 18.59 years for the participants under study. This particular investigation encompassed 295 (52%) male patients, while a corresponding cohort of 272 (48%) constituted the female patient population [Table 1].

Table 1: Demographic characteristics of study participants

Parameter	Value
Age (Mean ± SD)	42.87 ± 18.59
Males, n (%)	295 (52%)
Females, n (%)	272 (48%)

The distribution of cases within the study exhibited a predominant representation from the department of general surgery, accounting for 65.43% of the cases, followed by the orthopedics department comprising 18.34% of the cases, and obstetrics and gynecology (OBG) department contributing 14.11% of the cases [Table 2].

Table 2: Branch wise distribution of surgeries

Surgical Branch	Frequency (n)	Percentage (%)
General Surgery	371	65.43
Orthopaedics	104	18.34
Obstetrics & Gynaecology	80	14.11
Others	12	2.12
Total	567	100.00

The predominant preanesthetic pharmaceutical employed among the participant cohort was identified as alprazolam This was succeeded in frequency by the utilization of pantoprazole [Table 3]. Moreover, the examination highlighted that the foremost gastroprotective agent adopted was pantoprazole, encompassing a substantial proportion, while omeprazole followed it [Table 4].

Table 3: Preanesthetic medications used in different surgeries

Preanesthetic medications	Frequency (n)	Percentage (%)
Alprazolam	338	59.61
Pantoprazole	295	52.03
Ondansetron	115	20.28
Omeprazole	105	18.52
Ranitidine	96	16.93
Tramodol	5	0.88

Table 4: Gastroprotective drugs used as a preanaesthetic medication

Gastroprotectives	Frequency (n)	Percentage (%)
Pantoprazole	345	60.85
Omeprazole	121	21.34
Ranitidine	110	19.40

Discussion

The present study sheds light on the prevailing paradigm of preanesthetic medication administration across diverse surgical specializations within the confines of a tertiary care hospital. The findings gleaned from our analysis reveal a pronounced preference for sedative-antianxiety drugs, gastroprotective agents, and antiemetic agents in the context of preanesthetic interventions. In our examination, the mean age of the subjects was determined to be 42.87 ± 18.59 years, mirroring a comparable study by Kulkarni and Patil [7]. The present inquiry comprised an almost equal distribution of male and female patients. This contrasts with the study conducted by Biswas and Shivamurthy, where male patients predominated [4] as well as the study by Shah et al., where female

patients held a higher proportion for preanesthetic medication use [7]. Among the preanesthetic medications, alprazolam emerged as the foremost sedative-antianxiety drug, aligning with findings from Biswas and Shivamurthy's study.[4] In contrast, our observations diverge from Patil and Kulkarni's investigation, which endorsed midazolam as the favored sedative-antianxiety medication.[9] The selection of alprazolam can be attributed to its minimal patient side effects, anxiety-reducing attributes, mitigation of pain responses, and augmentation of anesthesia success rates, rendering it a prevalent preanesthetic sedative-antianxiety agent.[10].

Within this study, the preeminent gastroprotective agent was identified as pantoprazole, consistent with Shah et al.'s findings, wherein pantoprazole also held sway as the frequently employed gastroprotective agent. [8] Noteworthy is the fact that our study also encompassed the utilization of additional gastroprotective agents such as omeprazole and ranitidine. The rationale behind these choices is grounded in their ability to lower gastric acid secretion, elevate gastric pH levels, and thereby curtail the likelihood of aspiration pneumonia, a potentially life-threatening complication during general anesthesia [11,12].

In the realm of antiemetic provision, ondansetron was harnessed to preempt post-operative nausea and vomiting, mirroring similar application in the study by Shah et al [8]. Acknowledging the prevalent occurrence of post-operative nausea and vomiting in both general anesthesia recipients and opioid-consuming patients, the effectiveness of 5-HT3 antagonists in mitigating these issues remains well-established [6]. Remarkably, tramadol emerged as the opioid analgesic of limited preference within our study. Conversely, the study by Kulkarni and Patil identified pentazocine as the predominantly employed opioid analgesic, and Shah et al.'s investigation indicated fentanyl as the prevalent opioid analgesic choice [7, 8]. The omission of antisecretory-anticholinergic agents in our study can be attributed to contemporary practices that favor fluorinated general anesthetics, which exhibit reduced irritancy, and intravenous anesthetic agents, promoting swift induction and recovery times, thereby circumventing the need for such agents as antisecretory aids [13].

Conclusion

This investigation provides a comprehensive insight into the prevailing preanesthetic medication patterns across diverse surgical domains. Among the preanesthetic interventions, the administration of sedative antianxiety drugs, gastroprotective agents, and antiemetics emerged as notable practices. Conversely, opioid analgesics witnessed limited utilization, while neuroleptic compounds and antisecretory-anticholinergic agents were notably absent within the purview of this study. The predominant preanesthetic medications, as discerned from our analysis, encompassed alprazolam, followed sequentially by pantoprazole and ondansetron.

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