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Assessment of the Efficacy of Antiemetic Medications in Reducing Postoperative Nausea and Vomiting among Patients Undergoing General/Regional Anesthesia: A Descriptive Cross-Sectional Study in Albayda, Libya

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Abstract:

Objective: Postoperative nausea and vomiting (PONV) is a common complication observed among most patients following surgical procedures performed under general or regional anesthesia. This study aimed to assess the incidence, severity, duration, and treatment of PONV in patients across a range of surgical procedures.

Methods: A descriptive cross-sectional study was conducted among 150 patients admitted to Albayda Medical Center in Albayda, Libya. The participants were divided into two equal groups of 75 patients each—one receiving general anesthesia and the other receiving regional anesthesia.

Results: Our findings revealed that the incidence of PONV was significantly higher among those in the general anesthetic group, with 50 out of 75 patients reporting PONV, in comparison to 30 out of 75 patients in the regional anesthetic group. The severity of PONV varied, with the general anesthetic group having 18 patients with mild nausea, 15 patients with moderate nausea, and 17 patients experiencing severe vomiting, and the regional anesthetic group recording 12 mild cases, 13 moderate cases, and 5 severe cases. The average duration of PONV symptoms ranged from 2 to 24 hours for the general anesthetic group, and from 2 to 6 hours for the regional anesthetic group. Antiemetic medications were given to 25 patients with PONV in the general anesthetic group and 10 patients in the regional anesthetic group. Among these participants, 15 in the general anesthetic group reported complete relief of PONV symptoms, while 10 reported partial relief. In contrast, 5 patients in the regional anesthetic group reported complete relief of symptoms while the remaining 5 reported partial relief.

Conclusions: Our results indicate that general anesthesia is associated with a higher incidence and greater severity of PONV, as well as prolonged duration of symptoms compared to regional anesthesia. Therefore, it is essential to select suitable anesthesia techniques to reduce PONV symptoms and improve antiemetic treatment approaches to ensure timely and adequate relief of symptoms, particularly among patients undergoing general anesthesia.

Keywords: General anesthesia, Reginal anesthesia, PONV, Antiemetics, Albayda.

تقييم فعالية الأدوية المضادة للقيء في الحد من الغثيان والقيء بعد الجراحة لدى المرضى الخاضعين للتخدير العام والنصفي: دراسة وصفية مقطعية في مدينة البيضاء، ليبيا

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الملخص

الهدف: يُعدّ الغثيان والقيء بعد العمليات الجراحية من المضاعفات الشائعة التي تُلاحظ لدى معظم المرضى بعد العمليات الجراحية التي تُجرى تحت التخدير العام أو النصفي. هدفت هذه الدراسة إلى تقييم معدل حدوث الغثيان والقيء بعد العمليات الجراحية وشدته ومدته وعلاجه لدى المرضى الذين خضعوا لمجموعة من العمليات الجراحية المختلفة.

الطريقة: أُجريت دراسة وصفية مقطعية على 150 مريضًا تم إدخالهم إلى مركز البيضاء الطبي في مدينة البيضاء، ليبيا. قُسّم المشاركون إلى مجموعتين متساويتين تضم كل منهما 75 مريضًا - إحداهما تتلقى التخدير العام والأخرى تتلقى التخدير النصفي.
النتائج: كشفت نتائجنا أن معدل حدوث الغثيان والقيء بعد العمليات الجراحية كان أعلى بشكل ملحوظ لدى المرضى الذين خضعوا للتخدير العام، حيث أبلغ 50 من أصل 75 مريضًا عن إصابتهم بالغثيان والقيء بعد العمليات الجراحية، مقارنةً بـ 30 من أصل 75 مريضًا في مجموعة التخدير النصفي. تفاوتت شدة القيء بعد التخدير، حيث عانى 18 مريضًا من غثيان خفيف في مجموعة التخدير العام و15 مريضًا من غثيان متوسط و17 مريضًا من قيء شديد، بينما سجلت مجموعة التخدير النصفي 12 حالة خفيفة و13 حالة متوسطة و5 حالات شديدة. تراوح متوسط مدة أعراض القيء بعد التخدير من ساعتين إلى 24 ساعة لمجموعة التخدير العام، ومن ساعتين إلى 6 ساعات لمجموعة التخدير النصفي. أُعطيت أدوية مضادة للقيء لـ 25 مريضًا مصابًا بالقيء بعد التخدير في مجموعة التخدير العام و10 مرضى في مجموعة التخدير النصفي. من بين هؤلاء المشاركين، أفاد 15 مريضًا في مجموعة التخدير العام بتحسن كامل لأعراض القيء بعد التخدير، بينما أفاد 10 مرضى بتحسن جزئي. في المقابل، أفاد 5 مرضى في مجموعة التخدير النصفي بتحسن كامل للأعراض، بينما أفاد الخمسة الباقون بتحسن جزئي.
الاستنتاجات: تشير نتائجنا إلى أن التخدير العام يرتبط بارتفاع معدل حدوث وشدة الغثيان والقيء، بالإضافة إلى إطالة مدة الأعراض مقارنةً بالتخدير النصفي. لذلك من الضروري اختيار تقنيات تخدير مناسبة لتخفيف أعراض الغثيان والقيء وتحسين أساليب العلاج بمضادات القيء لضمان تخفيف الأعراض في الوقت المناسب وبشكل كافٍ، خاصةً لدى المرضى الخاضعين للتخدير العام.

الكلمات المفتاحية: التخدير العام، التخدير النصفي، الغثيان والقيء بعد العمليات الجراحية، مضادات القيء، مدينة البيضاء.

Introduction

Postoperative nausea and vomiting (PONV) remain a significant concern for both patients and medical professionals following surgical procedures [1]. PONV is characterized by feelings of nausea, retching, and vomiting that typically occur within the first 24 to 48 hours after surgery [2]. Despite advancements in anesthesia techniques and perioperative care, PONV continues to affect around 30–45% of patients undergoing routine surgeries, with incidence rates exceeding 65% among high-risk individuals [3]. The persistence of this complication can result in heightened postoperative discomfort, delayed recovery, extended hospital stays, and increased healthcare expenses [4]. The incidence and severity of PONV can vary based on various factors, including patient characteristics, type of surgery, and anesthetic techniques [5]. General anesthesia is frequently associated with a greater likelihood of experiencing PONV compared to regional anesthesia. Anesthetic drugs, especially volatile anesthetics and opioids, tend to increase the risk of nausea and vomiting both during and after surgical procedures [6]. Our descriptive cross-sectional study intends to offer an updated perspective on the incidence, severity, duration, and treatment of PONV associated with general/regional anesthesia. By comparing these two anesthetic techniques, the study seeks to identify patterns and indicators that could help anesthesiologists and surgical teams develop customized approaches to minimize the risk of PONV.

Methods

This descriptive cross-sectional study was conducted at Albayda Medical Center in Albayda, Libya, from January 1 to July 31, 2025, and included 150 patients aged 15 to 60 years who had undergone different surgical procedures. Based on the type of anesthesia received, the patients were categorized into two groups: the general anesthetic group (n=75) and the regional anesthetic group (n=75). To ensure consistency in the data, patients with a history of PONV or motion sickness, those who were pregnant, and those taking medications that could influence the occurrence of PONV were excluded from the study. The incidence of PONV was evaluated within the first 24 hours following surgery, and its severity was classified as mild, moderate, or severe, based on patient self-reports and clinical assessments. Symptom duration was recorded as the interval from the onset to the resolution of symptoms. The administration of antiemetics, including the type of medications used, was accurately documented. Data were analyzed using SPSS Version 20. One-way ANOVA was performed, followed by the chi-square test. *P*-values below 0.05 were considered statistically significant ($P<0.05$).

Results

As shown in Table 1, the incidence rate of PONV was significantly higher in the general anesthetic group when compared to the regional anesthetic group. PONV was observed in 50 out of 75 patients (66.66%) in the general anesthetic group and in 30 out of 75 patients (40.00%) in the regional anesthetic group. Overall, the total incidence of PONV across both groups was 53.33%. The general anesthetic group exhibited higher severity levels of PONV, with 18 patients experiencing mild nausea, 15 having moderate nausea, and 17 suffering from severe vomiting. In contrast, the regional anesthetic group exhibited lower severity, with 12 patients experiencing mild nausea, 13 having moderate nausea, and 5 reporting severe vomiting. Patients who received general anesthesia experienced a longer average duration of PONV symptoms compared to those who received regional anesthesia. The duration of PONV symptoms for patients in the general anesthetic group ranged from 2 to 24 hours, while that of the regional anesthetic group ranged from 2 to 6 hours. In the general anesthetic group, 25 out of 50 patients (50%) suffering from PONV were treated with antiemetics, compared to only 10 out of 30 patients (33.33%) in the regional anesthetic group. Among those who were given antiemetics, 15 patients in the general anesthetic group experienced complete relief of PONV symptoms, while 10 reported partial relief. In contrast, 5 patients in the regional anesthetic group reported complete relief of symptoms, while the remaining 5 experienced partial relief.

Table 1. Incidence, severity, duration, and treatment of PONV in the general/regional anesthetic groups.

	Anesthetic Groups (n=150)		
Variables	**General Anesthetic Group**	**Regional Anesthetic Group**	***P-values***
Total Patients (n, %)	75 (50.00%)	75 (50.00%)	0.2314
Patients with PONV (n)	50	30	0.0067*
Incidence of PONV Symptoms (%)	66.66%	40.00%	0.0023*
Severity of PONV Symptoms - Mild nausea (n, %) - Moderate nausea (n, %) - Severe vomiting (n, %)	 18 (36.00%) 15 (30.00%) 17 (34.00%)	 12 (40.00%) 13 (43.33%) 5 (16.66%)	 0.0087*
Average Duration Range of PONV Symptoms (hours)	2-24 hours	2-6 hours	0.0004*
Patients Received Antiemetics (n, %) - Complete relief of PONV symptoms - Partial relief of PONV symptoms	25 (50.00%) 15 (60.00%) 10 (40.00%)	10 (33.33%) 5 (50.00%) 5 (50.00%)	 0.0058*

Discussion

This study aimed to assess the incidence, severity, duration, and treatment of postoperative nausea and vomiting among patients who received general/regional anesthesia. The results indicate significant differences in the incidence and severity of PONV depending on the type of anesthesia administered. General anesthesia was associated with the highest incidence of PONV, affecting 66.66% of patients. This finding aligns with previous research, which identifies general anesthesia as a significant risk factor due to the emetogenic properties of the volatile anesthetics and opioids frequently used in this technique [7-9]. In contrast, regional anesthesia was linked to a lower incidence of 40.00%. This may be attributed to its minimal systemic effects, which reduces the likelihood of activating the chemoreceptor trigger zone (CTZ) in the brain [10]. Patients who received general anesthesia experienced the longest average duration of PONV symptoms, ranging from 2 to 24 hours. In contrast, the duration of symptoms among those who received regional anesthesia was shorter, averaging between 2 to 6 hours. These findings suggest that regional anesthesia may be more effective in mitigating postoperative discomfort and reducing hospital stays [11,12]. The findings also highlight the significance of selecting the appropriate anesthesia technique for patients with an elevated risk of developing PONV. The administration of antiemetic medications differed depending on the type of anesthesia, with 50% of patients who received general anesthesia being administered antiemetic medications, compared to 33.33% of those who received regional anesthesia. Nevertheless, there is a clear necessity for enhanced management protocols to ensure timely and sufficient relief, particularly for patients undergoing general anesthesia [13].

These results underscore the importance of personalized anesthetic procedures and risk evaluations to minimize the incidence of PONV. Strategies such as tailoring anesthesia techniques for high-risk patients, administering preventive antiemetics, and using non-drug-related interventions could further alleviate the impact of PONV.

Conclusion

This study confirms that general anesthesia is associated with the highest incidence and severity of PONV, underlining the need for customized anesthetic approaches for high-risk patients. Regional anesthesia is linked to comparatively lower rates of PONV incidence and shorter durations of symptoms, offering a viable alternative for risk reduction. Enhanced strategies for prevention and management are crucial for improving patient recovery and reducing postoperative discomfort. Overall, these results highlight the necessity for proactive management of PONV to optimize patient outcomes following surgery.

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Conflicts of Interest
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author contributions
N.I.: conceptualization, literature review, data analysis, methodology, data curation, and writing- original draft preparation; Y.M: method validation, data curation, data analysis, software, review & editing, and supervision. Both authors have reviewed and approved the final version of this manuscript submitted for publication.

ethics approval statement
The authors confirm that the Research Ethics Committee of Albayda Medical Center in Albayda, Libya, approved the protocol for this study (protocol code: AMC680/13 and date of approval: December 10th, 2024).

informed consent statement
All participants provided written informed consent after being thoroughly informed about the study's protocol and procedures.

data availability statement
The data supporting the results of this study can be obtained from the corresponding author with a reasonable request.

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