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Research Article

New Trials in Iraqi Hospitals to Manage Pain After Excisional Hemorrhoidectomy

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Abstract

Background: Excisional hemorrhoidectomy is well-documented to be the best operation for high-grade hemorrhoids as well as complicated hemorrhoids. Yet, postoperative pain is still an exciting problem. ***Objective***: To identify the best synergistic pharmacological mode used for reducing post-excisional hemorrhoidectomy pain. ***Methods***: In a randomized study, 400 patients attending Al-Khadraa' Private Hospital, Baghdad, during the period from June 2022 to January 2024 were allocated into 4 groups (100 in each) according to type of anesthesia and analgesia at intraoperative as well as postoperative management. All underwent excisional hemorrhoidectomy according to the surgeon's decision. Group I received paracetamol with nefopam; Group II received paracetamol, nefopam, ketamine, and fentanyl; Group III received paracetamol, nefopam, ketamine, fentanyl, and tramadol; and Group IV received paracetamol, nefopam, fentanyl, tramadol, and pethidine. ***Results***: Group I reported the highest pain scores across all time points. Group II and Group III showed moderate improvement in pain control. Group IV demonstrated the lowest pain scores throughout, with a higher percentage of patients reporting minimal or no pain. Data analysis revealed a significant difference in pain scores between groups, and Group IV had significantly lower pain levels compared to the other groups. ***Conclusions***: Though there are dissimilarities in the drug methodology in different studies, some Iraqi strategies to reduce post-hemorrhoidectomy pain are presented in this work, however, the combination of paracetamol, nefopam, fentanyl, tramadol, and pethidine had the best effect.

Keywords: Analgesia, Excisional hemorrhoidectomy, Postoperative pain control.

تجارب جديدة في المستشفيات العراقية للتحكم في الألم بعد جراحة استئصال البواسير

الخلاصة

الخلفية: تُعدُّ عملية استئصال البواسير جراحيًا الخيار الأمثل لعلاج البواسير من الدرجات المتقدمة وكذلك البواسير المعقدة، إلا أن الألم بعد العملية لا يزال يمثل مشكلة بارزة. **الهدف**: تحديد أفضل أسلوب دوائي تآزري للتقليل من الألم بعد استئصال البواسير جراحيًا. **الطرائق**: في دراسة عشوائية شملت 400 مريض راجعوا مستشفى الخضراء الأهلي في بغداد خلال الفترة من حزيران 2022 إلى كانون الثاني 2024، تم توزيعهم على أربع مجموعات (100 مريض في كل مجموعة) حسب نوع التخدير ومسكنات الألم المستخدمة أثناء العملية وبعدها. خضع جميع المرضى لاستئصال البواسير وفق قرار الجراح. تلقت المجموعة الأولى الباراسيتامول مع النيفوبام، والمجموعة الثانية الباراسيتامول والنيفوبام والكيتامين والفنتانيل، والمجموعة الثالثة الباراسيتامول والنيفوبام والكيتامين والفنتانيل والترامادول، أما المجموعة الرابعة فقد تلقت الباراسيتامول والنيفوبام والفنتانيل والترامادول والبيثيدين. **النتائج**: سجّلت المجموعة الأولى أعلى درجات للألم في جميع الأوقات، بينما أظهرت المجموعتان الثانية والثالثة تحسنًا متوسطًا في السيطرة على الألم، في حين أظهرت المجموعة الرابعة أدنى درجات للألم طوال فترة المتابعة، مع نسبة أعلى من المرضى الذين أفادوا بوجود ألم طفيف أو انعدامه. أظهر تحليل البيانات وجود فرق معنوي في درجات الألم بين المجموعات، وكانت المجموعة الرابعة الأقل ألمًا بشكل ملحوظ مقارنة بالمجموعات الأخرى. **الاستنتاجات**: رغم اختلاف البروتوكولات الدوائية في الدراسات المختلفة، فإن بعض الاستراتيجيات العراقية لتقليل الألم بعد استئصال البواسير جراحيًا تم عرضها في هذا العمل، وقد كان لمزيج الباراسيتامول والنيفوبام والفنتانيل والترامادول والبيثيدين أفضل تأثير.

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INTRODUCTION

Hemorrhoids are still an important concept of medical studies worldwide [1-3] since they are considered the most common benign anal disease met by physicians and surgeons [4,5]. It has been valued that the threat of getting hemorrhoid disease might be as high as 75% of the general population [4]. Even though most hemorrhoids are usually treated efficiently by drugs and/or outpatient clinic minor surgical methods, surgical

procedures are designated for high-grade types of hemorrhoids and for complicated cases [4-7]. It is well documented that non-excisional types of surgeries, for example, stapled hemorrhoidopexy as well as hemorrhoidal artery ligation with Doppler support, are less painful than excisional hemorrhoidectomy [8]. Nevertheless, the advantages of excisional hemorrhoidectomy are that it has a lesser incidence of return with a lower cost. Also, both external and internal constituents of hemorrhoids can be effectively removed by excisional hemorrhoidectomy, which can be performed in an emergency or elective situation [5-7]. Accordingly, excisional hemorrhoidectomy is considered the first choice of all types of operations for traditional and/or complicated forms of hemorrhoids [8-10], but still, the postoperative pain persists as a routine problem [1,11]. Although there are various pain scale measures, healthcare professionals and assistants usually use one of the four chief types. Numerical scale: by using a scale of 1–10. Visual analog scale: Classifies pain laterally as a horizontal line extending from mild to severe pain. Faces pain scale (Wong-Baker): pain severity is assessed by facial expressions to characterize diverse pain levels. Verbal rating scale: A patient pronounces his level of pain in talking [2,11-15]. In the current study, the level of postoperative pain felt by the patients was estimated at rest using the Wong-Baker FACES Pain Rating Scale, by which the pain severity felt by the patient is assessed as the following: The rating scales were of incrementally increasing levels of pain that were felt by the patient and appeared on him through inspection by the doctors or health providers. Level zero, i.e., the patient feels no pain (no hurt); then level 2 refers to the patient hurting a little bit, level 4 refers to the patient hurting a little more, level 6 refers to the patient hurting even more, level 8 refers to the patient hurting a whole lot, and level 10 refers to the patient hurting the worst [16-18]. The study was designed to identify the best synergistic pharmacological mode used for reducing post-excisional hemorrhoidectomy pain.

METHODS

Study design and setting

The study employed a cross-sectional analytic design with statistical inference and was conducted in the Department of Human Anatomy at the College of Medicine, Mustansiriyah University. It included 400 Iraqi patients, men and women, who were documented clinically to have either high-grade hemorrhoids or complicated hemorrhoids and, hence, underwent excisional hemorrhoidectomy. This study was done between the 1st of June 2022 and the 1st of January 2024 at the Department of General Surgery, Al-Khadraa Private Hospital, Baghdad, Iraq.

Patient selection and intervention

Four studied groups were encompassed in this current study, each consisting of 100 patients. These groups were divided according to the type of anesthesia and analgesia at intraoperative as well as postoperative management; Group I included patients that had received only paracetamol with nefopam as analgesia in the postoperative period. Group II patients had received paracetamol, nefopam, ketamine 0.5 mg/kg, and fentanyl 100 µg. Group III patients had received paracetamol, nefopam, ketamine 0.5 mg/kg, fentanyl 100 µg, and tramadol 100 mg. Group IV patients had received paracetamol, nefopam, fentanyl 100 µg, tramadol 100 mg, and pethidine. Specifically, patients were randomized using a computer-generated random number table. Allocation was concealed using sealed opaque envelopes. While blinding of patients was not feasible due to the nature of the interventions, outcome assessors were blinded to reduce bias. The results were compared consistently with the pain severity using the Wong-Baker FACES Pain Rating Scale.

Outcome measurements

By using Wong-Baker FACES Pain Rating Scale, pain severity is being assessed as the following: The pain rating scales were of incrementally increasing levels of pain that were felt by the patient and appeared on him through inspection by the doctors. Level zero, i.e., the patient feels no pain (no hurt); then level 2 refers to the patient hurting a little bit, level 4 refers to the patient hurting a little more, level 6 refers to the patient hurting even more, level 8 refers to the patient hurting a whole lot, and level 10 refers to the patient hurting the worst [18-20], as shown in figure 1.

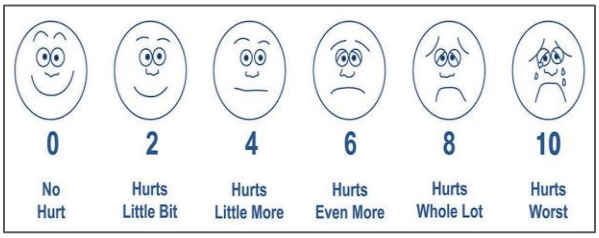

Figure 1: Wong-Baker FACES pain rating scale

Postoperative pain was measured at rest within routine care at 6, 12, 24, and 48 hours after the surgical procedure.

Ethical approval

The study was conducted under the ethical principles that have their origin in the WMA Declaration of Helsinki. It was carried out with patients' verbal and analytical approval and was ethically approved by the local Research Ethics Committee at the College of

Medicine, Mustansiriyah University, with approval number 108 dated 6/4/2022.

Statistical analysis

Data were analyzed using SPSS version 26 (IBM Corp.) and Microsoft Office Excel 365. Continuous variables were expressed as mean ± standard deviation (SD). Comparisons between groups were made using one-way ANOVA. A *p*-value of <0.05 was considered statistically significant [19].

RESULTS

Postoperative pain (felt by the patient) was measured at rest within routine care at 6, 12, 24, and 48 hours after the surgical procedure. The level of postoperative pain felt by the patients of each group was estimated as the number of patients falling in each specific scale of pain, as shown in Table 1. In group I (patients had received only paracetamol with nefopam as analgesia in the intraoperative and postoperative periods).

Table 1: Percentage of patients for each pain scale

Groups	Postoperative Time (hr)	Score-0	Score-2	Score-4	Score-6	Score-8	Score-10
Group I	6	0	13	14	19	28	26
	12	0	16	17	21	25	21
	24	0	10	17	26	27	20
	48	0	9	22	29	21	19
Group II	6	7	17	14	21	19	22
	12	4	14	19	25	23	15
	24	4	18	24	24	19	11
	48	0	15	24	27	18	16
Group III	6	22	17	17	18	15	11
	12	6	20	21	21	19	13
	24	3	19	27	23	18	10
	48	1	18	27	27	16	11
Group IV	6	73	13	9	5	0	0
	12	44	19	17	11	9	0
	24	21	26	22	18	11	2
	48	0	29	33	21	15	2

Values were expressed as percentages.

The distribution of patients according to pain scale and postoperative time is summarized in the following chart (Figure 2).

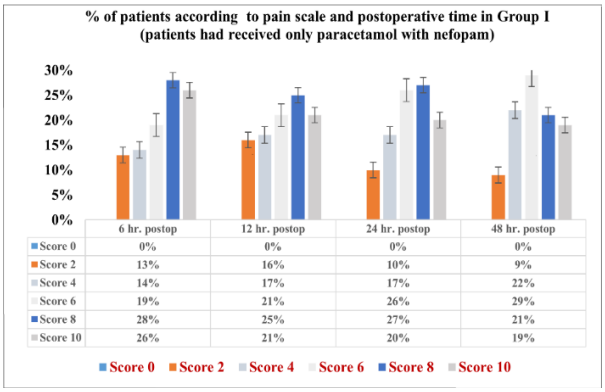

Figure 2*:* The distribution of patients according to pain scale and postoperative time in group I.

In group II (patients had received paracetamol, nefopam, ketamine 0.5 mg/kg, and fentanyl 100 µg). The distribution of patients according to pain scale and postoperative time is summarized in the following chart (Figure 3). In group III (received paracetamol, nefopam, ketamine 0.5 mg/kg, fentanyl 100 µg, and tramadol 100 mg). The distribution of patients according to pain scale and postoperative time is summarized in the following chart (Figure 4).

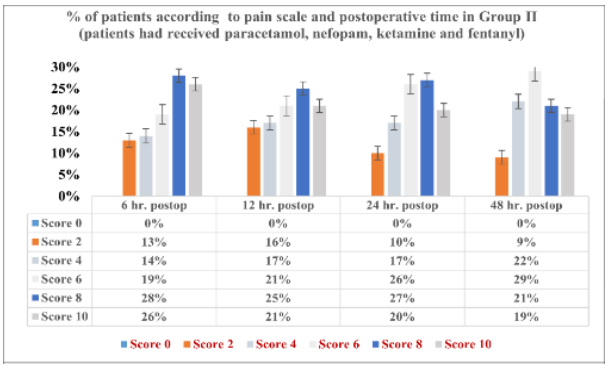

Figure 3: The distribution of patients according to pain scale and postoperative time in group II.

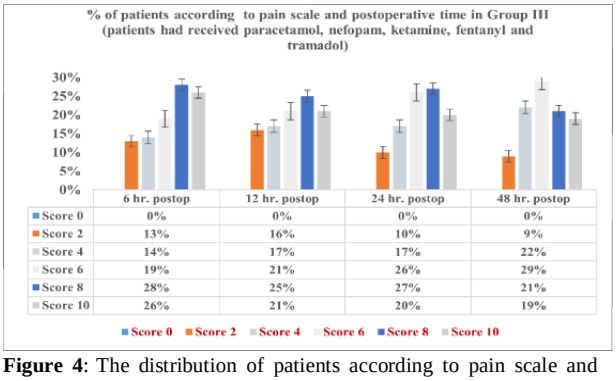

Figure 4: The distribution of patients according to pain scale and postoperative time in group III.

In group IV (patients had received paracetamol, nefopam, fentanyl 100 µg, tramadol 100 mg, and pethidine). The distribution of patients according to pain scale and postoperative time is summarized in the following chart (Figure 5).

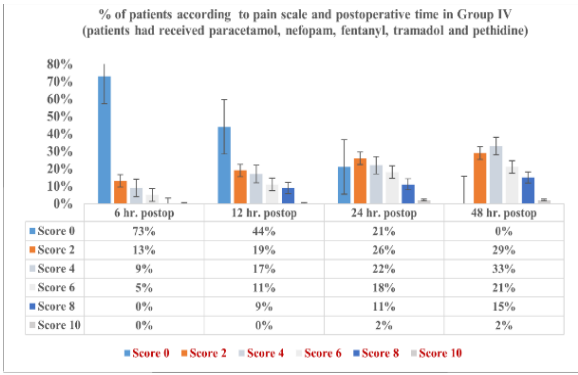

Figure 5: The distribution of patients according to pain scale and postoperative time in group IV.

The ANOVA test and post hoc analysis of 6 hr postoperative pain scores confirmed that there was a statistically significant difference in pain scores between the four groups in all postoperative periods with a *p*-value less than 0.001 (Table 2).

Table 2: Post hoc analysis of 6 hr postoperative pain scores

Comparison	Mean differences	*p*-value
Group I vs Group II	0.92	<0.001
Group I vs Group III	2.40	<0.001
Group I vs Group IV	5.88	<0.001
Group II vs Group III	1.48	<0.001
Group II vs Group IV	4.96	<0.001
Group III vs Group IV	3.48	<0.001

DISCUSSION

This work had been done for the 1st time in Iraqi society as an attempt to compare our results with the global ones, just like many other previous Iraqi works [20-22]. The ongoing study comprehensively covered most of the available pain-relieving strategies in the Iraqi surgical field that are usually used to reduce pain after excisional hemorrhoidectomy, excluding the painkiller medicine that is used for neurogenic pain, such as pregabalin and gabapentin [23]. So our ongoing work was an attempt to explore the synergistic effects of the most habitually used types of collective analgesia used as intraoperative and/or postoperative routine by way of painkillers, because the adjusting of postoperative pain, up till now, has been a very important matter in postoperative care [24], so it is a material of research interest for many workers within all of the surgical fields [25-27]. In this research, excisional hemorrhoidectomy only was included. Because it is still considered the best type of treatment for both high-grade hemorrhoids and complicated hemorrhoids [1,2,25]. In this work, we regarded group I as the control group, although they were also given analgesia because it was impossible to leave the patient without any analgesic medication since it is well-known that severe pain could lead to shock [25]. The Wong-Baker Faces Pain Rating Scale is a standardized instrument for assessing pain intensity experienced by individuals. It was developed in 1983 by Donnie Wong and Connie Baker. They identified that children are rating their pain well by facial expressions. Thus, they established the scale to help children to transfer their pain level for the healthcare professionals to assess their condition and to decide the best treatment course. The scale begins at 0 and ends at 10 with increasing numbers in pauses of two. Each of the numbers relates to a face as well as a small expressive phrase [17,18]. Nevertheless, since then, researchers have recognized that the scale is also appropriate for adults as well but may be inappropriate for patients with frank cognitive impairments [12-18]. Although there are many other types of pain scales, we find the Wong-Baker Faces Pain Rating Scale easiest to use in this work. The current study was designed to choose a specific postoperative time at rest condition, i.e., after 6, 12, 28, and 48 hours, because these are the most important phases for pain expression [7]. An additional remarkable finding in the study is the significant difference in pain scores between the four groups, as confirmed by the ANOVA test ($p < 0.05$). Group IV showed the highest proportion of patients reporting minimal or no pain, particularly in the early postoperative hours. Alternatively, group I had the highest percentage of patients with moderate to severe pain. These results support the concept of multimodal analgesia, where combining different analgesics can provide greater pain control. This aligns with our primary objective to assess the synergistic effect of analgesic combinations used in Iraqi hospitals [28].

Study limitations

A limitation of this study is that adverse effects of the analgesic drugs were not recorded. Although no serious complications were noted clinically, the absence of systematic monitoring limits the safety assessment. Future studies should address this point.

Conclusion

Our result concluded that group IV encompassed the best effects on pain level scaling. Nevertheless, we recommended that multimodal lines to control the post-excisional hemorrhoidectomy pain to reach a better pain relief level need to be investigated. Within this idea, first-hand pharmacological as well as non-pharmacological procedures still require continuous experience to achieve a better reduction for post-excisional hemorrhoidectomy pain, which is an unresolved and disturbing problematic afterward excisional hemorrhoidectomy.

Conflict of interests

The authors declared no conflict of interest.

Funding source

The authors did not receive any source of funds.

Data sharing statement

Supplementary data can be shared with the corresponding author upon reasonable request.

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