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Pain management strategies for acute abdominal pain in the emergency department: a study from the Al-Hilla Teaching Hospital (Iraq)

Ali Jalil Al-Saigh[1], Noor Abdalwahd[2], Rusul W. Kadhum[3], Rafal J. Al-Saigh[4,*], Sally H. Al-Humadi[5], Noor Jalil Alsaigh[6]

[1]Al-Hilla Teaching Hospital, Babel Health Office, Hillah, Iraq
[2]Department of Pharmacology and Toxicology, College of Pharmacy, University of Babylon, Hillah, Iraq
[3]Department of Pharmaceutics, College of Pharmacy, University of Babylon, Hillah, Iraq
[4]Department of Clinical Laboratory Sciences, College of Pharmacy, University of Babylon, Hillah, Iraq
[5]College of Medicine, University of Babylon, Hillah, Iraq
[6]Kerbala Health Office, Kerbala, Iraq

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*** CORRESPONDING AUTHOR:**
Rafal J. Al-Saigh, Department of Clinical Laboratory Sciences, College of Pharmacy, University of Babylon, Hillah, Iraq; e-mail: phar.rafal.jalil@uobabylon.edu.iq

ABSTRACT

Acute abdominal pain is a frequent cause of emergency department (ED) visits, yet the management of pain in patients with acute abdominal pain remains controversial. Concerns about masking symptoms and delaying diagnosis have traditionally led to the withholding of analgesics prior to diagnosis. However, recent evidence suggests that early pain management does not compromise diagnostic accuracy or outcomes. This study evaluates the demographic and clinical characteristics of 97 patients presenting with acute abdominal pain at the Al-Hilla Teaching Hospital in Babylon, Iraq, from June 2023 to September 2023. The study focuses on their medication intake and pain management strategies, highlighting the effectiveness of a multimodal approach, including the use of esomeprazole, ketorolac, hyoscine butylbromide, ondansetron, and budesonide, in alleviating pain and associated symptoms. The results show that majority of the patients (90.7%) presented to the ED within 6 h of pain onset. The most frequently administered medications were esomeprazole (95.8%), ketorolac (70.1%), and antibiotics (64.9%). Pain subsided within 30–49 min in 60.8% of patients, demonstrating the effectiveness of early analgesia. The study supports the safe and timely administration of analgesics in the ED, challenging traditional practices and emphasizing the need for updated guidelines in order to improve patient care in emergency settings.

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1. Introduction

Acute abdominal pain is one of the most common reasons for emergency department (ED) visits, accounting for a significant proportion of cases worldwide. It is a symptom that can arise from a wide range of underlying conditions, including gastrointestinal, genitourinary, and gynaecological disorders, as well as systemic illnesses. Despite its prevalence, the management of pain in acute abdominal pain patients remains a subject of debate[1]. The challenge lies in balancing the need for prompt pain relief with the necessity of accurate diagnosis, as the underlying cause of abdominal pain can vary from benign conditions to life-threatening emergencies such as perforated ulcers, appendicitis, or ectopic pregnancies. Historically, clinicians have been reluctant to administer analgesics prior to diagnosis, fearing that pain relief might obscure clinical signs and lead to diagnostic errors. This traditional approach was based on the belief that masking pain could interfere with the ability to localize the source of the problem or assess the severity of the condition. For example, a reduction in pain might make it difficult to detect peritoneal signs, such as rebound tenderness, which are critical for diagnosing conditions such as peritonitis. However, emerging evidence suggests that early analgesia does not impair diagnostic accuracy and may, in fact, improve patient comfort and outcomes[2]. Studies have shown that patients who receive timely pain relief are better able to cooperate during physical examinations and diagnostic procedures, leading to more accurate assessments.

In Iraq, where healthcare resources are often strained, the management of acute abdominal pain in the ED presents unique challenges[3]. Limited access to advanced diagnostic tools (such as computed tomography scans or magnetic resonance imaging) and a high patient load can delay both diagnosis and treatment, making clinicians less precise on clinical judgment; in such cases, the effective management of pain is even more critical, as it can help stabilize patients while diagnostic evaluations are underway. This study aimed at evaluating the demographic and clinical characteristics of patients presenting with acute abdominal pain at the Al-Hilla Teaching Hospital (Iraq), with a focus on their medication intake and pain management strategies. By examining the effectiveness of a multimodal approach to pain management, the study sought to provide evidence-based recommendations for improving patient care in resource-limited settings. The study also aimed at challenging the traditional dogma of withholding analgesics prior to diagnosis, particularly in settings where diagnostic delays are common.

2. Methodology

A retrospective analysis was conducted on 97 patients who presented with acute abdominal pain. to the ED of the Al-Hilla Teaching Hospital, Babylon, Iraq, from June 2023 to September 2023. Ethical approval for this study was obtained from the Institutional Review Board of the Al-Hilla Teaching Hospital (protocol number: AHT-2023-ED-01; date: May 15, 2023). Data were collected on demographic characteristics, associated symptoms, duration of pain before presentation, and medications administered in the ED. The medications evaluated included esomeprazole, ketorolac, antibiotics (intravenous), hyoscine butylbromide, ondansetron, intravenous fluids, and budesonide. The duration of the pain subsidence after treatment was also recorded. Statistical analysis was performed in order to determine the frequency and distribution of medication use and its association with pain relief. All categorical variables were presented in the form of numbers and percentages.

3. Results

The study included 97 patients, with a mean age of 39.6 years. The majority of the patients were female (60.8%) and the most common age group was 39–48 years (28.9%). The most frequently reported symptoms associated with acute abdominal pain were nausea and vomiting (95.8%), followed by loose stools (52.5%), and fatigue (38.1%). Most patients (90.7%) presented to the ED within 6 h of pain onset (Table 1).

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Table 1. Demographic data of the study's 97 patients that entered the emergency department (ED) with acute abdominal pain and an overview of their associated symptoms, duration of pain before presentation, and medications administered. Abbreviations used: i.v., intravenous; SOB, shortness of breath.

Demographic data of patients (N=97)						
Age (in years)						
18–28	**29–38**	**39–48**	**49–58**	**59–68**	**69–78**	**≥79**
21 (21.6 %)	23 (23.7 %)	28 (28.9 %)	12 (12.4%)	7 (7.2 %)	5 (5.2 %)	1 (1 %)
Sex						
female			**male**			
59 (60.8 %)			38 (39.2%)			
Symptoms associated with acute abdominal pain						
nausea, vomiting	**loose stool**	**fatigue**	**vertigo**	**fever**	**SOB**	
93 (95.8%)	51 (52.5%)	37 (38.1%)	27 (27.8%)	32 (33.0%)	7 (7.2%)	
Duration of the pain before the presentations to the ED						
≤6 h		**6–12 h**		**>12 h**		
88 (90.7%)		6 (6.2%)		3 (3.1%)		
Drugs used in treatment of patients acute abdominal pain at ED						
esomeprazole	**ketorolac**	**antibiotics (i.v.)**	**hyoscine butylbromide**	**ondansetron**	**fluids (i.v.)**	**budesonide**
93 (95.8%)	68 (70.1%)	63 (64.9%)	54 (55.6%)	43 (44.3%)	48 (49.4%)	21 (21.6%)
Duration of subsiding from acute abdominal pain after treatment						
20–29 min	**30–39 min**	**40–49 min**	**50–59 min**	**≥60 min**		
12 (12.4%)	27 (27.8 %)	32 (33.0 %)	20 (20.6 %)	6 (6.2 %)		

The most commonly administered medications were esomeprazole (95.8%), ketorolac (70.1%), and antibiotics (64.9%). Hyoscine butylbromide was used in 55.6% of cases, while ondansetron and intravenous fluids were administered to 44.3% and 49.4% of the patients, respectively. Budesonide was the least frequently used medication (21.6%). Pain subsided within 20–29 min in 12.4% of patients, while the majority experienced relief within 30–49 min (60.8%) (Table 1).

4. Discussion

The findings of this study demonstrate that a multimodal approach to pain management is effective in alleviating acute abdominal pain in the ED. A multimodal strategy involves the use of multiple medications with different mechanisms of action in order to target various aspects of pain and its associated symptoms. This approach not only provides more comprehensive pain relief, but also minimizes the side effects associated with high doses of single medications.

Esomeprazole, a proton pump inhibitor, was the most frequently administered medication (95.8%), reflecting its role in reducing gastric acid secretion and alleviating gastrointestinal discomfort, particularly in patients with suspected peptic ulcers or gastritis[4]. Ketorolac, a nonsteroidal anti-inflammatory drug, was the second most commonly used medication (70.1%); its anti-inflammatory and analgesic properties make it effective in managing pain caused by inflammation, such as in cases of appendicitis or diverticulitis[5]. The combination of esomeprazole and ketorolac addresses both the underlying gastrointestinal issues and the inflammatory component of pain, providing a dual approach to symptom relief.

Hyoscine butylbromide, an antispasmodic agent, was used in 55.6% of cases; this medication targets smooth muscle spasms in the gastrointestinal tract,

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which are a common source of colicky abdominal pain, particularly in conditions like irritable bowel syndrome or biliary colic[6]. Ondansetron, an antiemetic, was administered to 44.3% of patients to manage nausea and vomiting, which were present in 95.8% of cases; by controlling these symptoms, ondansetron not only improves patient comfort, but also reduces the risk of dehydration and electrolyte imbalances, which can complicate the clinical picture[7]. Finally, the relatively low use of budesonide (21.6%) suggests that it may be reserved for specific cases, such as inflammatory bowel disease. Budesonide is a corticosteroid with potent anti-inflammatory effects, particularly in the gastrointestinal tract; its targeted action makes it suitable for managing conditions like Crohn's disease or ulcerative colitis, where localized inflammation is the primary concern[8].

The rapid subsidence of pain in most patients (within 30–49 min) underscores the effectiveness of early analgesia[9]. This finding is particularly significant in the context of acute abdominal pain, where timely pain relief can improve patient cooperation during diagnostic procedures and reduce overall distress. These results align with recent evidence challenging the traditional practice of withholding analgesics prior to diagnosis[10]. Historically, there was concern that pain relief might mask clinical signs and lead to diagnostic errors. However, contemporary studies have shown that early analgesia does not impair diagnostic accuracy and may, in fact, enhance it by allowing patients to better communicate their symptoms and tolerate physical examinations.

Our study has significant implications for emergency care in Iraq and similar resource-limited settings. It also highlights the importance of addressing associated symptoms, such as nausea and vomiting, which were present in the majority of patients. By incorporating medications such as ondansetron into the pain management strategy, clinicians can provide more holistic care, addressing not only the pain, but also the secondary symptoms that contribute to patient discomfort. This comprehensive approach is particularly important in resource-limited settings such as Iraq, where delayed or inadequate treatment can lead to worse outcomes. Future research should focus on the long-term outcomes of early analgesia and its impact on diagnostic accuracy and patient satisfaction.

5. Conclusion

This study supports the safe and timely administration of analgesics in patients presenting with acute abdominal pain in the ED. A multimodal approach, incorporating esomeprazole, ketorolac, hyoscine butylbromide, ondansetron, and other medications, is effective in alleviating pain and associated symptoms. These findings challenge the traditional dogma of withholding analgesics prior to diagnosis and emphasize the need for updated guidelines in order to improve patient care in emergency settings.

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Conflicts of interest

None exist.

ORCIDs

0009-0008-6116-4814 (A.J. Al-Saigh); 0009-0004-9931-8568 (N. Abdalwahd); 0009-0006-2258-6649 (R.W. Kadhum); 0000-0001-7044-2873 (R.J. Al-Saigh); 0009-0003-3384-0575 (S.H. Al-Humadi); 0009-0000-1037-4039 (N.J. Alsaigh)

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