CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

Available online at: http://www.iajps.com *Research Article*

COMPARISON OF THE EFFICACY OF DICLOFENAC AND PETHIDINE SUPPOSITORY IN PATIENTS WITH RENAL COLIC ADMITTED IN THE EMERGENCY DEPARTMENT

[1]Dr Sajid Ali, [2]Dr Kamran Iftikhar, [3]Dr Ruqayya Tabassum

[1]Isra University, Hyderabad

[2]Isra University, Hyderabad, Altibri Medical College, Karachi

[3]Fatima Jinnah Medical University, Lahore

Article Received: May 2020 **Accepted:** June2020 **Published:** July 2020

Abstract:

Objective: *Renal colic is a common cause of emergency visits. Treatment in the emergency department (ED) is limited to pain control due to the spontaneous passage of over 90% of kidney stones. Currently used painkillers are selected based on the experience of doctors and various theories from various sources. The purpose of this study was to compare popular drugs (pethidine and diclofenac) used in renal colic.*

Place and Duration: *In the emergency department of the Jinnah Hospital Lahore for six months duration from October 2019 to March 2020*

Methods: *In this randomized, single-blind clinical trial, 90 renal colic patients admitted to the emergency department of the Jinnah Hospital Lahore were randomly assigned to each of 3 treatments, including a pethidine suppository (50 mg, intravenously) and a diclofenac suppository (50 mg) and a combination of suppositories of pethidine and diclofenac. In this sense, the response to treatment and the length of hospital stay were compared.*

Results: *The suppository of diclofenac was the best pain reliever in patients under 25 years of age. Pethidine and diclofenac are the best solutions for patients aged 25–45 years. In contrast, pethidine was the best treatment for patients over 45 years of age. We also observed a reduction in hospital stay in patients receiving pethidine.*

Conclusion: *It can be concluded that morphine is more suitable for controlling pain and reducing hospital stay in patients with renal colic.*

Key words: *renal colic, emergency room, pain relief unit*

Corresponding author:

Dr. Sajid Ali,

Isra University, Hyderabad

QR code

Please cite this article in press Sajid Ali et al, ***Comparison Of The Efficacy Of Diclofenac And Pethidine Suppository In Patients With Renal Colic Admitted In The Emergency Department.,*** *Indo Am. J. P. Sci, 2020; 07(07).*

INTRODUCTION:

Kidney stones are the third most common urinary disorder after prostate disease and infections. A painful attack is the most common clinical symptom known as renal colic. This is one of the most common medical emergencies in the world in which many patients are regularly referred to hospital emergency departments. Urinary tract pain usually requires immediate and effective control because it is the worst pain a person experience. Pain is caused by enlargement of the kidney capsule and pelvis (skin) above the block due to increased pressure in the upper urinary tract or blockage of stones. Usually this is a sharp pain that may accompany nausea, vomiting and microscopic or macroscopic hematuria. Because 90% of stones are rejected spontaneously, the best practice for dealing with these patients is to eliminate their pain. As the main and strongest drug, opioids can release pain by inhibiting pain receptors in the central nervous system by stimulating MU (μ) and Delta (δ). However, complications such as respiratory depression and activation of vomiting in the bone marrow cause some difficulties in using opioids. Non- steroidal anti-inflammatory drugs (NSAIDs) by inhibiting the enzyme cyclooxygenase, prevent the production of prostaglandin E2 and relieve pain. They can cause side effects such as gastrointestinal effects, but the overall complication rate is lower than for opioids. Currently, different methods are used, using different opioids and NSAIDs and other compounds, according to the experience and opinions of the doctor. Some researchers believe that the simultaneous use of opium and NSAIDs is more effective than their use. Because of this, patients are earlier discharged from the emergency room, while several studies suggest using opium when NSAIDs do not work as a first-line treatment option. In other studies, NSAIDs alone were not recommended because of late start. Given the current debate about the treatment of these patients and compounds used in erectile dysfunction, we examined the effect of combining the pethidine suppository, diclofenac suppository and their combination to alleviate pain in patients with renal colic. We also assessed the impact of various treatment methods on the length of stay in the emergency department.

METHODS:

This study is a randomized single blind clinical trial involving 90 patients with acute renal colic held in the emergency department of the Jinnah Hospital Lahore for six months duration from October 2019 to March 2020. Individuals with clinical diagnosis of acute renal colic (flank pain associated with urinary symptoms such as polyuria, dysuria, and hematuria confirmed by ruling out other causes of flank pain, physical exam, and paraclinical examination such as ultrasound) who were between the ages of 18 to 60 years and their pain equal or more than 5 on the pain visual analog scale (VAS) were eligible for inclusion Those with one of the following conditions were excluded from the study: pregnant women, nursing mothers, patients who received pain relief medication (analgesia) 6 hours prior to admission, those who had renal dysfunction, patients treated with warfarin, patients with bleeding disorders, those with a history of gastrointestinal problems after taking NSAIDs, and those who were addicted to drugs. Therefore, 90 patients were divided into 3 groups of 30 people, and each drug was studied in one group. Each patient's pain levels were recorded at the beginning of the study. Patients were then randomly assigned to one of 3 active therapeutic groups: 50 mg suppository, 50 mg diclofenac suppository and a combination of acceptable block randomization and 2 drugs. Pain ratings were recorded on arrival and 10 minutes after the first use of each drug. Pain assessments were reassessed 10 minutes after the second use of each drug after 30 minutes. Patients with persistent pain were given 5 mg of morphine over 40 minutes. In this study, the rate of pain reduction to 3 degrees was accepted each time as a response to treatment.

All patients were monitored by phone within 48 hours after treatment, and the accuracy of renal colic diagnosis was confirmed by ultrasound and laboratory tests. After editing and introducing the software, the data was analyzed using chi-square analysis and marginal models. Descriptive statistics were used to show the basic properties of variables.

RESULTS:

90 patients were evaluated in this study; 66.7% are men. The mean age was 34.50 ± 10.97, 32.20 ± 8.19 and 41.47 ± 11.46 and was not statistically different. Longitudinal analyzes and marginal models were used to investigate the relationship between pain intensity and age and the drug used. For this purpose, the variable age is divided into 4 categories: under 25 years, 25-35 years, 35-45 years and over 45 years. As shown in Table 1, there was a significant relationship between pain intensity over time (P = 0.00) and drug interaction and age (P = 0.008). We also observed a significant relationship between age and time and pharmacological interactions (p = 0.00). For the second and third time, patients under 25 years of age reduced their average pain intensity more than other age groups. This means that at the beginning of the study, patients under the age of 25 had the highest level of pain, a rapid increase in pain over time.

The most appropriate pain reliever was a suppository of diclofenac in patients under 25 years of age. On the other hand, combination therapy is suitable for the 25-35 age range, for pethidine and

the 35-45 age group, and for patients over 45 years of age (Figures 1 and 2 and Table 2).

Table 1. Relationship between pain intensity and type of treatment received

Variable	F	*P* value
Drug	0.05	0.954
Age	3.38	0.022
Time	418.71	0.000
Drug*age	3.13	0.008
Drug*age*time	12	0.000

Table 2. Relationship between duration of hospitalization and type of treatment received

Variable	F	*P* value
Drug	10.60	0.000
Age	1.54	0,217
Drug*age	9.03	0.000

There was a significant relationship between the duration of hospitalization and medication intake. Duration of hospitalization for those who received pethidine suppository was the least and for those who received diclofenac suppository it was the most. Also, the minimum duration of hospitalization was related to the group which received pethidine supposition.

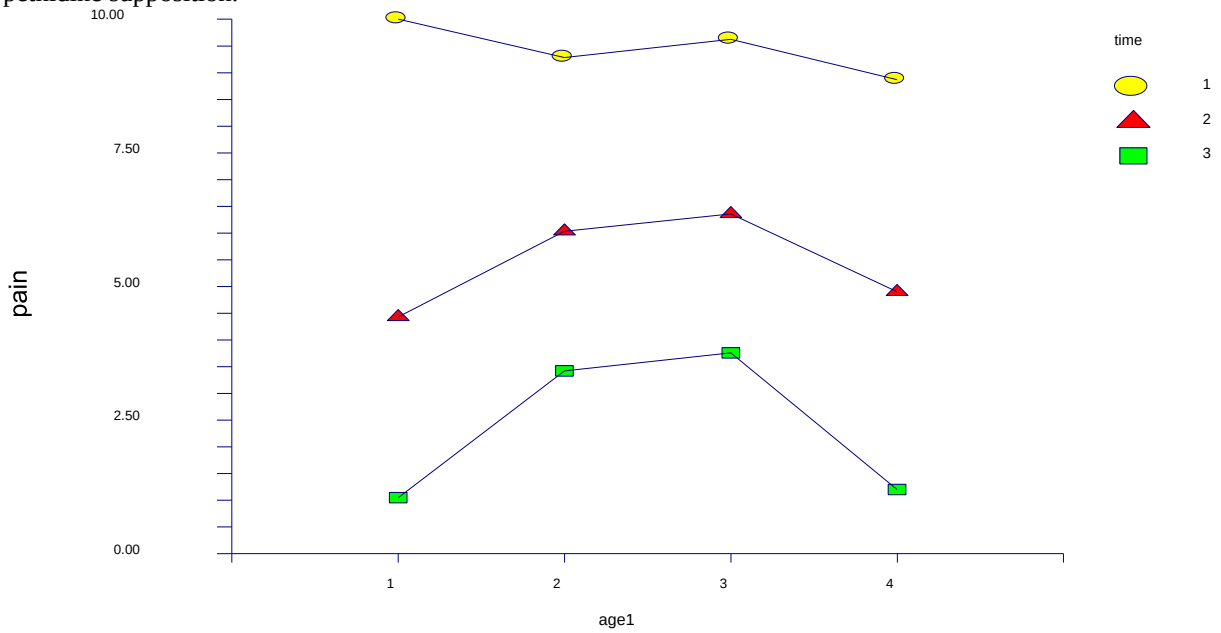

Figure 1. Pain intensity according to age groups over time.

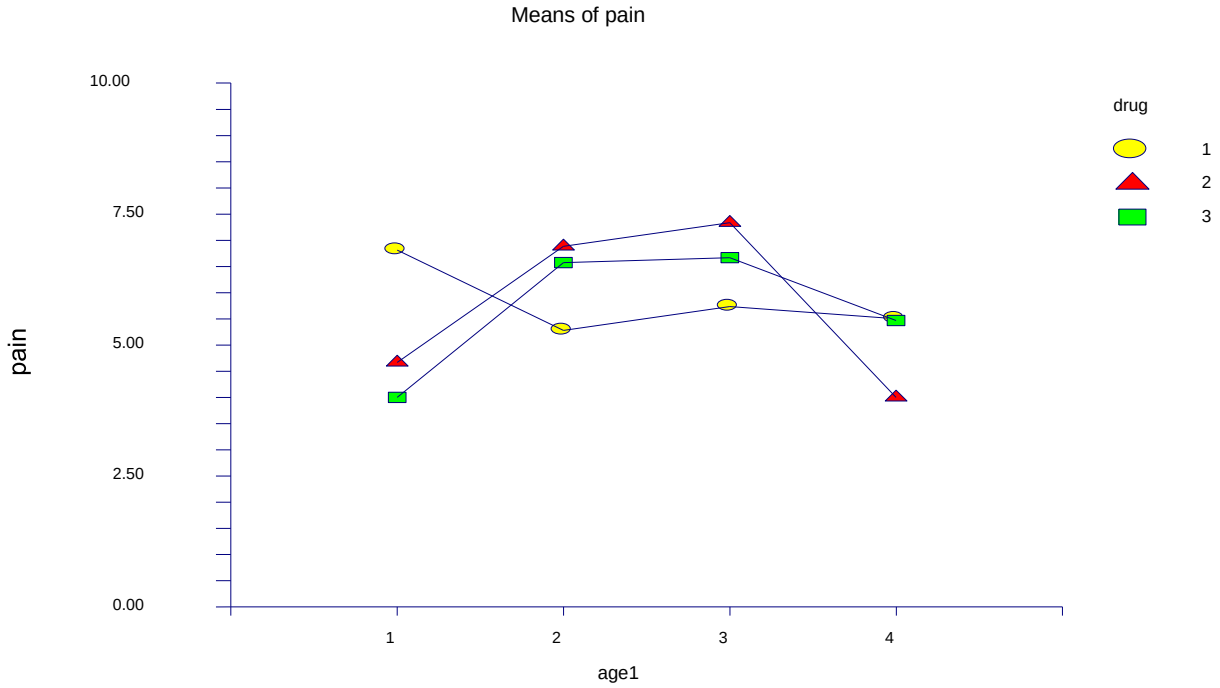

Figure 2. Pain intensity in age groups over time according to the drug received.

DISCUSSION:

In this study, all 3 treatments were significantly effective in relieving the pain of kidney stones. But given the variable age as an influential factor, the rate of pain relief showed different changes in various ages. The most suitable medication to reduce pain was diclofenac suppository in patients less than 25 years, pethidine in 25-35 and 35- 45 age groups, and pethidine-diclofenac in patients over 45 years. There was also a significant difference in the duration of hospitalization of patients in the 3 groups, and pethidine devoted less time for hospitalization. In a study comparing morphine, ketorolac, and their combination on patients with renal colic, no significant differences were found in relieving the pain between groups that received morphine or ketorolac alone, but their combination in relieving acute renal colic was more effective than either drug alone. However, considering age as the mediator variable, we conclude that pethedine was the best treatment for 25-45 age groups. But pethidine-diclofenac was the best medicine for pain relief in patients over 45 years of age. In previous studies in order to compare the effects of common pain management in the treatment of acute renal colic, diclofenac suppository (50 mg) was an appropriate option for pain relief. As well, it was considered the ideal treatment for the age group less than 25 years in the present study. For opioids used in the treatment of renal colic, a number of studies have been conducted to compare the efficacy and safety of morphine and pethidine in relieving pain associated with renal colic in erectile dysfunction. Based on the results, there was no significant difference between pethidine and morphine to control pain, but morphine was recommended due to complications associated with more pethidine. Some studies have also been performed to investigate some NSAIDs. In the study comparing diclofenac and ketorolac, the safety and efficacy of the two medicines were similar and there was no significant difference between them.

CONCLUSION:

It can be concluded that the use of morphine can better control pain and shorten hospital stay in patients with renal colic who report to the emergency department.

REFERENCES:

1. Brasure, Michelle, Victoria A. Nelson, Shellina Scheiner, Mary L. Forte, Mary Butler, Sanket Nagarkar, Jayati Saha, and Timothy J. Wilt. "Evidence Tables: Renal Colic." In *Treatment for Acute Pain: An Evidence Map [Internet]*. Agency for Healthcare Research and Quality (US), 2019.
2. Ma, Jian, Yanhong Zhao, Huihui Fan, and Jia Liu. "Comparing the analgesic effect of intravenous paracetamol with morphine on patients with renal colic pain: A meta-analysis of randomized controlled studies." *The American Journal of Emergency Medicine* (2020).
3. Yarani, Mohammad, Ahmad Amouzeshi, Mostafa Behmanesh, Ali Mohammad Pourbagher-Shahri, Soroush Hozeifi, and Ali Rajabpour-Sanati. "Comparison of the effect of diclofenac suppository with intravenous meperidine in relieving pain after laparoscopic

cholecystectomy in opioid-dependent and independent patients." *Journal of Surgery and Trauma* 7, no. 3 (2019): 66-75.

4. Gu, Hui-Yun, Jie Luo, Jun-Yi Wu, Qi-Sheng Yao, Yu-Ming Niu, and Chao Zhang. "Increasing nonsteroidal anti-inflammatory drugs and reducing opioids or paracetamol in the management of acute renal colic: based on three-stage study design of network meta-analysis of randomized controlled trials." *Frontiers in pharmacology* 10 (2019): 96.
5. Habibi, A., A. Alipour, A. Gholipour Baradari, A. Gholinataj, M. R. Habibi, and S. Peivandi. "The Effect of Adding Lidocaine to Patient Controlled Analgesia with Morphine on Pain Intensity after Caesarean Section with Spinal Anesthesia: A Double-Blind, Randomized, Clinical Trial. OAMJMS [Internet]. 2019Jun. 30 [cited 2019Jul. 2]; 70." (2019).
6. Habibi, Ali, Abbas Alipour, Afshin Gholipour Baradari, Abdolmajid Gholinataj, Mohammad Reza Habibi, and Saloumeh Peivandi. "The effect of adding lidocaine to patient controlled analgesia with morphine on pain intensity after caesarean section with spinal anesthesia: a double-blind, randomized, clinical trial." *Open Access Macedonian Journal of Medical Sciences* 7, no. 12 (2019): 1946.
7. Ferraro, Pietro Manuel, William Robertson, and Robert Unwin. "Renal stone disease." *Medicine* 47, no. 9 (2019): 537-540.
8. Zaporowska-Stachowiak, Iwona, Mary-Tiffany Adannia Oduah, Magdalena Celichowska, Gabriela Dziuba, Anna Mikołajczak, Maria Perlińska, Martyna Woźniak, Lidia Gorzelinska, and Maciej Sopata. "Opioids in clinical practice." *Palliative Medicine in Practice* 13, no. 4 (2019): 221-228.
9. Branch, Ren-Ai. "Taiwanese consensus recommendations for acute pancreatitis." (2019).
10. Liao, Wei-Chih, Tien-Chien Tu, Kuei-Chuan Lee, Jseng-Hwei Tseng, Ming-Jen Chen, Cheuk-Kay Sun, Shang-Yu Wang et al. "Taiwanese consensus recommendations for acute pancreatitis." *Journal of the Formosan Medical Association* (2019).
11. Turner, Sheila. "Pharmacology of Pain." In *Understanding Pharmacology in Nursing Practice*, pp. 117-145. Springer, Cham, 2020.
12. Neuhaeuser, Christoph, and Dietrich Klauwer. "Analgosedation." In *A Practical Handbook on Pediatric Cardiac Intensive Care Therapy*, pp. 151-178. Springer, Cham, 2019.
13. Rollison, Julia, Karen Woo, Christine Chen, Sachi Yagyu, Aneesa Motala, and Susanne Hempel. "Enhanced Recovery After Surgery for Vascular Surgery." (2019).
14. MacLeod, Rod, and Steve Macfarlane. *The palliative care handbook: guidelines for clinical management and symptom control*. Hammond Health Care, 2019.
15. Shevchenko, Olga Stanislavna, Volodymyr Mykolayovych Kozko, Liliya Dmytrivna Todoriko, Vasyl Ivanovych Petrenko, and Nina Fedorivna Merkulova. "Palliative care in TB/HIV co-infection: students' manual." (2019).