

# Efficiency of Analgesic Effects of Nsaids and Opioids in Ureteric Colic Patients

MR Keshava Murthy<sup>1</sup>, Aruna C Ramesh<sup>2</sup>, K N Vikas<sup>3</sup>

<sup>1</sup>Assistant Professor, Department of Emergency Medicine, Ramaiah medical college and hospital, Bangalore, Karnataka, India, <sup>2</sup>Professor and HOD, Department of Emergency Medicine, Ramaiah medical college and hospital, Bangalore, Karnataka, India, <sup>3</sup>Assistant professor, Department of Anaesthesiology, Ramaiah medical college and hospital, Bangalore, Karnataka, India.

## Abstract

**Background:** Evidences indicate that renal colic is the very painful conditions that will require very urgent pain relief. Patients who are suffering from renal colic usually do not recover from pain using pain killers. Hence, considerable percentage of patients will be admitted to the emergency department usually be used as pain relievers in the emergency department are non-steroidal antiinflammatory drugs and/or intravenous opioids for effective pain relief. **Subjects and Methods:** A retro prospective study, comparing intravenous single-dose paracetamol and combination of paracetamol, Hyoscine, diclofenac suppository and fentanyl for ureteric colic patients presenting in the emergency medicine department. **Results:** Ureteric colic seen in predominantly with 18-40 age group with Male Predominance. Majority of patients presented with pain abdomen with NRS of 0-6. Paracetamol and Hyoscine Used in 44% of cases, Diclofenac in Combination in 34% and along with fentanyl in 22%. Duration of Stay less than 24 hours in combination of paracetamol, Hyoscine and Diclofenac suppository combination when fentanyl used patients length of stay 24hours in 12%. Patients with NRS 0-6 majority of patients required paracetamol, Hyoscine and diclofenac suppository and Patient with NRS >7 (20%) Patients required fentanyl. **Conclusion:** In our study concluded that patient with mild to moderate pain paracetamol and diclofenac suppository shown good results and with severe pain additional analgesics fentanyl is used.

**Keywords:** Analgesia, NSAIDS, Opioids

**Corresponding Author:** K N Vikas, Assistant professor, Department of Anaesthesiology, Ramaiah medical college and hospital, Bangalore, Karnataka, India.

E-mail: [vikas.vikas7@gmail.com](mailto:vikas.vikas7@gmail.com)

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## Introduction

The main complaint of patients admitted in the medical health centers which account for nearly 4/5<sup>th</sup> of being presented to the emergency departments (ED) will be feeling pain. In an emergency setting, clinicians usually meet challenges about provision for effective treatment of acute pain. Although that professionals in health care believe patients report regarding the severity in the pain were accurate, both doctors or nurses most of the times under-estimate the pain.<sup>[1]</sup> Pain under-estimation / inconsistent evaluation will be important reason during insufficient treatment, it has been reported to be common among female, geriatric, pediatric, and ethnic minority populations in the United states.<sup>[2]</sup> Due to concern's regarding drug safety (like potential of the opioid be abused) and adverse effect's related to NSAID's, providers restriction in prescribed agents for treatment of acute pain.<sup>[3]</sup>

Mono-therapy with opioids is not the only optimal choice in patients who have suffered from acute pain, because opioids have potential for abuse, its side effects and insufficient efficacy in opioids compared with other therapies in many conditions.<sup>[4,5]</sup>

Evidences suggest that renal colic is an the most painful condition which require urgent pain relief.<sup>[6,7]</sup> Patients who are suffering from renal colic will not recover from pain with using oral pain killers and/or rectal suppositories. So, considerable percentage of patients were admitted in the emergency department. Bothering and sharp pain is the most common cause of renal colic pain which wakes up the patient during middle of the night. Normally used pain relievers in ED are non-steroidal antiinflammatory drugs and/or intravenous opioids which effective for pain relief.<sup>[8]</sup>

Parenteral Opioids and/or Non-steroidal antiinflammatory drugs (NSAIDs) are recommended as first line of treatment for acute renal colic pain. As NSAIDs and Opioids have several

severe side effects, it is crucial to identify drugs with negligible side effects, and an efficacious analgesic property for use in the emergency department. One of these alternative drugs is Intravenous Paracetamol (acetaminophen). Paracetamol is a potent agent for analgesia in emergency medicine with both analgesic and antipyretic properties. Intravenous Paracetamol infusion over 15 minutes is recommended for pain management.

**Aims & objective**

- To assess the analgesic efficacy of intravenous, single-dose Paracetamol and combined efficiency of paracetamol, hyoscine & diclofenac suppository & fentanyl for patients presenting with renal or ureteric colic to the emergency department.
- To determine the type of analgesics to length of stay

**Subjects and Methods**

All consecutive patients registered in the Emergency Department over a period of four months with acute renal colic are enrolled into the study. Intervention group patients divided into four groups.

Group 1 – Receiving only paracetamol

Group 2 – Receiving Paracetamol & Hyoscine.

Group 3 - Receiving Paracetamol, Hyoscine & Diclofenac Suppository.

Group 4 - Receiving Paracetamol, Hyoscine & Diclofenac Suppository & Fentanyl.

**Inclusion Criteria**

- Patients 18 years and above
- Patients whose pain was caused merely by renal colic were included to the study.

**Exclusion criteria**

- Patient with an allergy to diclofenac, hyoscine, paracetamol, or fentanyl.
- Patient with hemodynamic instability.
- A patient who have used any analgesic drug up to 6 hours before evaluation.
- Patient with history of heart failure, renal failure, respiratory failure, liver failure, kidney transplant patients, and opioid addiction.

**Methodology**

Numeric rating scale (NRS) was used to assess the intensity of pain and pain relief at regular intervals. Onset of analgesia is time interval from drug administration till NRS score come down to 2. Duration of analgesia is time interval between the

onset, till patient complaints of pain (NRS  $\geq 6$ ) when rescue analgesia was given – the end point of participation in the study. In continue, patient’s pain was assessed by using a Numeric rating scale (NRS), which rates the amount of pain from 0 to 10 based on patient’s confession.<sup>[9]</sup>

**NRS Scale**

- 0 - No pain.
- 1-3 - Mild pain.
- 4-6 - Moderate pain.
- 7-10 - Severe Pain.

**Drugs Dosings**

Injection Paracetamol 1 gram IV infusion over 30 min.

Injection hyoscine 10 mg IV over 5 min.

Injection Fentanyl 0.3- 0.5 micro gram/kg body weight bolus followed by infusion depending of the pain response of the patient.

Diclofenac suppository 100 mg per rectal route.

**Statistical method used**

Data entered in MS Excel using SPSS software analysis of frequency, percentage and pie charts derived.

**Results**

Male gender (60%) predominant, most of the patients are in age group of 18-40 years (48%). Most common presentation with pain abdomen 74% with pain score of NSR 0 -4(38 %,) 5-6 (30%) and 7-10 (32%). Most of the patients relived pain with NSAIDS (68%) and fentanyl infusion required in 32% of patients.

Pain Score (NRS)		
	Frequency	Percent
0 to 4	19	38.0
5 to 6	15	30.0
7 to 10	16	32.0

Age		
	Frequency	Percent
18 to 40 Years	24	48.0
41 to 60 Years	12	24.0
> 60 years	14	28.0

Gender		
	Frequency	Percent
Male	30	60.0
Female	20	40.0

Presenting Complaints		
	Frequency	Percent
Pain Abdomen	37	74.0
Pain Abdomen with Others Complaints	13	26.0

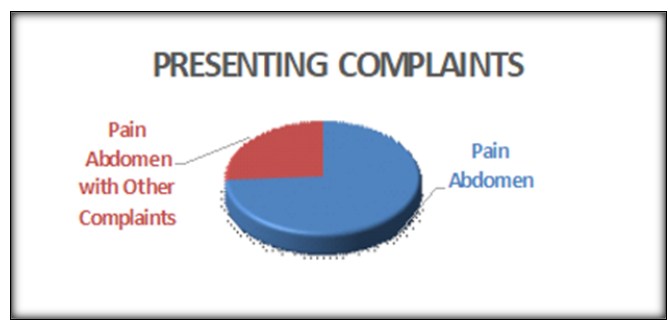
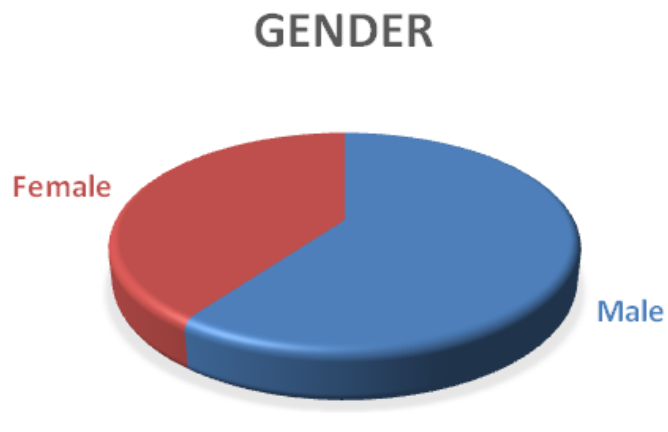
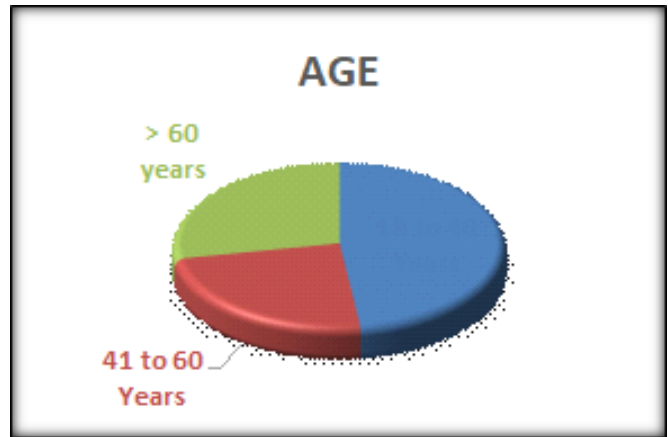
Analgesics		
	Frequency	Percent
Paracetamol	3	6.0
Paracetamol & Hyoscine	19	38.0
Paracetamol, Hyoscine & Diclofenac Suppository	17	34.0
Paracetamol, Hyoscine & Diclofenac Suppository & Fentanyl	11	22.0

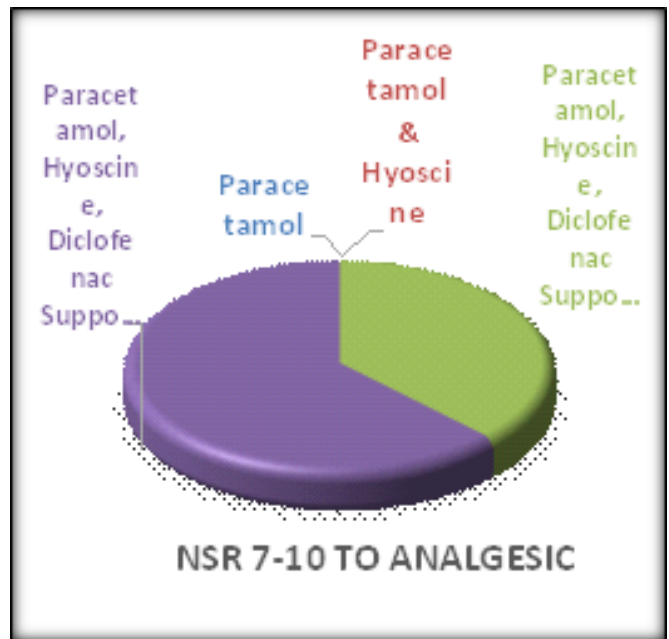
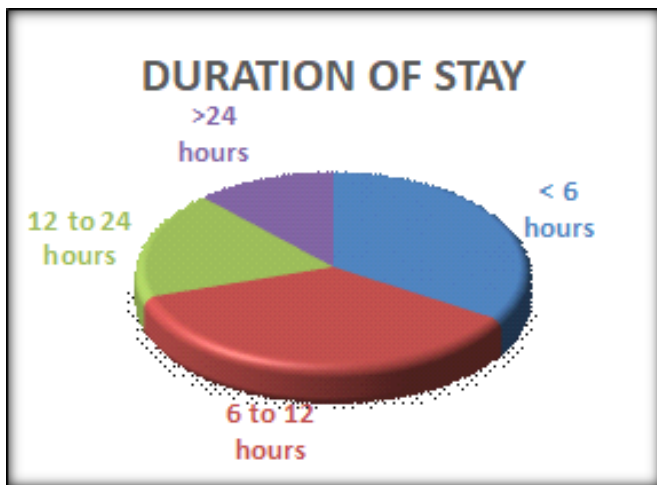
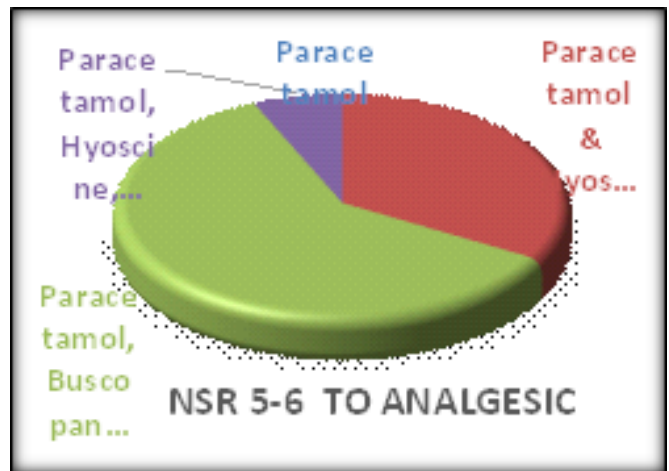
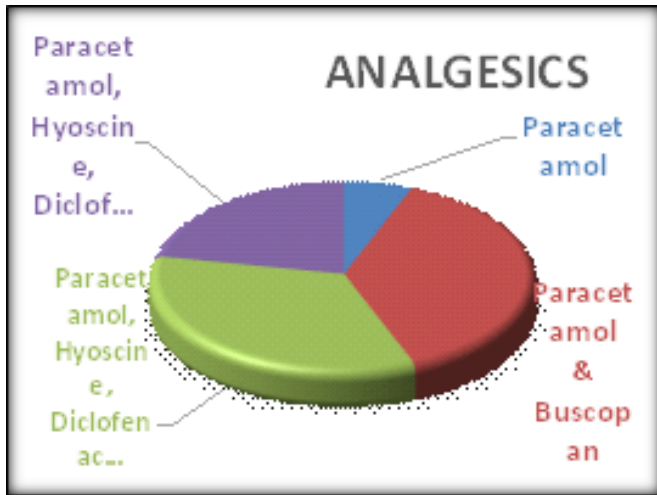
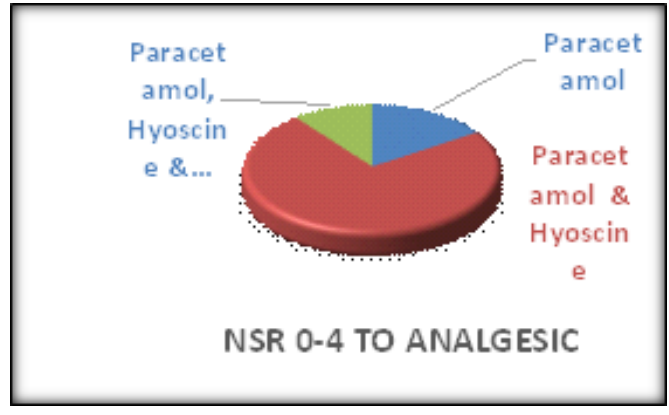
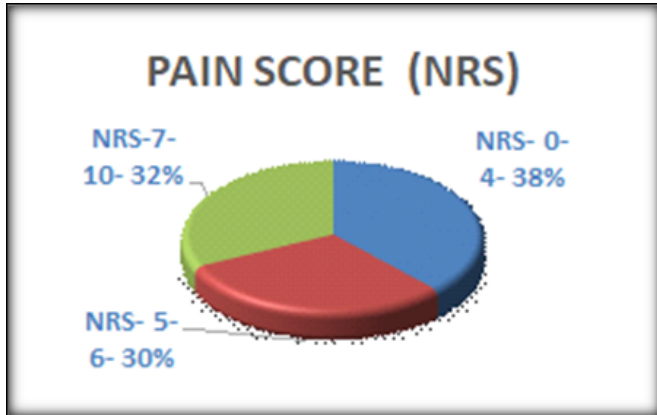
Duration of Stay		
	Frequency	Percent
< 6 hours	17	34.0
6 to 12 hours	18	36.0
12 to 24 hours	9	18.0
>24 hours	6	12.0

Pain Score to Analgesic Use _ 0 to 4		
Analgesic	Frequency	Percent
Paracetamol	3	15.78
Paracetamol & Hyoscine	14	73.68
Paracetamol, Hyoscine & Diclofenac Suppository	2	10.52
Paracetamol, Hyoscine & Diclofenac Suppository & Fentanyl	0	0

Pain Score to Analgesic Use 5- to 6		
Analgesic	Frequency	Percent
Paracetamol	0	0
Paracetamol & Hyoscine	5	33.33
Paracetamol, Hyoscine & Diclofenac Suppository & Fentanyl	9	60
Paracetamol, Hyoscine & Diclofenac Suppository & Fentanyl	1	6.66

Pain Score to Analgesic Use 7 to 10		
Analgesic	Frequency	Percent
Paracetamol	0	0
Paracetamol & Hyoscine	0	0
Paracetamol, Hyoscine & Diclofenac Suppository	6	37.5
Paracetamol, Hyoscine & Diclofenac Suppository & Fentanyl	10	62.5





## Discussion

Ureteric colic seen in predominantly with 18-40 age group with Male Predominance. Majority of patients presented with pain abdomen with NRS of 0-6. Paracetamol and Hyoscine Used in 44% of cases, Diclofenac in Combination in 34% and along with fentanyl in 22%. Duration of Stay less than 24 hours in combination of paracetamol, Hyoscine and Diclofenac suppository combination when fentanyl used patients length of stay 24hours in 12%. Patients with NRS 0-6 majority of patients required paracetamol, Hyoscine and diclofenac suppository and Patient with NRS >7 Patients required fentanyl (20%).

In similar studies shaden etal concluded that diclofenac intramuscular more effective,<sup>[10]</sup> study done by Eda ars et al, paracetamol is alternative effective analgesics in treatment of ureteric colic,<sup>[11]</sup> Abdullah Osman etal, study showed the fentanyl as alternative analgesics in ureteric colic,<sup>[12]</sup> Hyoscine butyl bromide which is antimuscarinic drug that block's action of the acetylcholine at para-sympathetic nerveending's at muscles and glands, theoretically effective when it is administered for relieving pain is associated with analgesic drug's for moderate-severe renal colic pain.<sup>[13,14]</sup>

## Conclusion

In our study concluded that patient with mild to moderate pain paracetamol and diclofenac suppository shown good results with severe pain additional analgesics fentanyl is used less than the required dose per kg body weight.

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