



RESEARCH ARTICLE

COMPARISON INTRAVENOUS PATIENT-CONTROLLED ANALGESIA (PCA) WITH (PARACETAMOL+ MORPHINE) AND (PARACETAMOL + TRAMADOL) FOR EARLIER HIP JOINT MOVEMENT AND SATISFACTION IN ORTHOPEDIC SURGERIES

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Abstract

In this study we evaluated effectiveness of post-operative pain management with Intravenous patient-controlled analgesia (PCA) device with combination of paracetamol and opioids drugs for earlier joint movement satisfaction and wellbeing of orthopedic patient with femoral intertrochanteric and neck fracture. Thirty-six patients were randomized in three groups: group C (Control group) only received routine pain control approach in orthopedic ward with intramuscular NSAID drugs (Diclofenac 100mg), group M (Paracetamol 2g + Morphine sulfate 10mg), and T (Paracetamol 2g + Tramadol 100 mg) received intravascular analgesic with patient control analgesia (PCA) with two different combination. The mean time for joint movement and come back to pervious ordinary activity after surgery were in group C 30±6.2 hour, in group M (Paracetamol 2g + Morphine sulfate 10mg) 24±3.50 hours, and in group T (Paracetamol 2g + Tramadol 100 mg) 24±3.00 hours. It seems patient controlled analgesia PCA with Paracetamol + Morphine or Tramadol can be useful for pain management and early hip joint movement after orthopedic surgeries.

Keywords: Pain, Morphine sulfate, PCA, Satisfaction, Paracetamol, Tramadol

Introduction

Postoperative pain management leads to patient satisfaction, earlier joint movement, patient ambulation and mobilization, reduce risk of infection, thromboembolic disorder (DVT), less post-op complication thus shortened hospital staying so reduced hospital costs [1-3].

The aim of pain management is reduce post-surgical complication, while providing adequate analgesia and help to rehabilitation. Today we have various methods to provide adequate post-op pain relief including analgesic drugs, acupuncture, acupressure, aromatic therapy, Transcutaneous

Electric Nerve Stimulation (TENS), Low-Level Laser PCA device. That needs multidisciplinary teams with multimodal analgesia. [4-10].

Intravenous patient-controlled analgesia (PCA) device is a potent method to pain control with patient request, who titrate intravascular analgesics to perceived pain stimulus that suffers. [11].

The major goal to pain management is provide less dependence on opioids and avoid their adverse effects. [12] Opioids is a potent drugs for pain control such as morphine and tramadol but with

side effect like nausea , vomiting ,pruritus ,urinary retention , respiratory depression ,physical dependence and addition .[13-14].

Intravenous paracetamol is an antipyretic and analgesic drugs , when added with opioids increase analgesic effect , with lower doses of opioids and decrease adverse side effect .[15-17].

In the pain less state patient tolerant joint movement as soon as possible. early mobilization and patient ambulation reduce postoperative complication like infection , bed sore ,pneumonia , respiratory and gastrointestinal disorder ,and thromboembolic disorder like (DVT).[15-17]

For these reasons, we used patient controlled analgesia (PCA) device with combination of (paracetamol + tramadol or morphine sulfate) for postoperative pain management in orthopedic femoral intertrochanteric or neck fracture surgeries.

Materials and Methods

After approved this randomized, double blind, prospective study by the institutional ethics committee, 36 orthopedic patients with femoral intertrochanteric and femoral neck fractures were scheduled for open reduction and internal fixation orthopedic surgeries.

The patients were randomly selected in three equal groups (each group: n = 12 patients). After surgery in the recovery for post-operative pain management the group C (Control group) received intramuscular diclofenac 100mg (NSAID) as routine analgesic in orthopedic ward when needed (PRN), but other two groups used PCA device with combination of (paracetamol 2gr + Morphine sulfate 10 mg) group M and (paracetamol 2gr + Tramadol 100 mg) group T.

According to visual analogue scale (VAS) pain was measured from zero (no pain) to ten (worst pain that patients could not tolerate). Patients pain measured 48 hours after operations and also evaluate for tolerate early hip joint movement time.

After study we collected the patient parametric data in three groups, and analyzed by SPSS static software (version 11.5). The time of joint movement data were expressed as mean \pm standard deviation for quantitative variables by student t-test and chi-squared test were compared the parametric patient

with P value < 0.05 was considered significant in this study.

Results and Discussion

According to our study there was no significant difference between the three groups in terms in range of age, weight, height, gender (Table 1, 2). The mean ages were 65.3 \pm 4.6 years in (C) control group, 68.6 \pm 3.9 years in the group (M) and 67.3 \pm 4.2 in the group (T). The age difference in three groups was not statistically significant (P value 0.05). The mean post-operative pain perception based on visual analogue scale (VAS) was 6.1 in the control group (C), 5.1 in the group (M) and 5.3 in the group (T). Also no significant difference was found between PCA groups M, T (P value >0.05) but it shows there were statistically significant difference between two PCA groups M , T with groups C that used intramuscular NSAIDs (p value < 0.05). The mean time of early hip joint movement that patients could tolerate after operation were 30 \pm 6.2 hours post-operative in the control group (C), 24 \pm 3.50 hours in the group (M) and 24 \pm 3.00 hours in the group (T). It means like pain perception no statistically difference between PCA groups M and T. But there were significant difference between groups C (intramuscular NSAIDs) with PCA groups M and T that used IV analgesic. (P value <0.05). (Table 3). Post-op time of back the patient to ordinary activity were 45 \pm 5.2 days in group C ,45 \pm 3.5 days in group M, 45 \pm 2.7 days in group T (Table 4). Like above no statistical difference between PCA groups (M&T) but significant difference between control groups (C) intramuscular NSAIDs. Satisfaction of patient from use of PCA intravascular analgesic (paracetamol+ morphine or tramadol) were 8 \pm 2 in group M, 7 \pm 1 group T, shows no significant difference (P value >0.05) but 4 \pm 2 in group C. (P value <0.05). (Table 5)

Conclusion

It suggests use of patient controlled analgesia (PCA) lead to better post-op pain control and patient satisfaction, early hip joint movement and reduce time of back the patient to ordinary activity after surgery.

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Table 1: Demographic Characteristics in the two groups

	Group C(n=12)	Group M(n=12)	Group T(n=12)	Pvalue
Age (years old)	65.3±4.6	68.6±3.9	67.3±4.2	p>0.05
Body weight (kg)	63.65 ± 6.10	65.57 ± 8.20	64.58±60	p>0.05
Height (centimeter)	176 ± 15	170 ± 10	173±16	p>0.05

Data are presented as mean ± standard deviation (SD). n: number of patients

Table 2: Distribution of sex in the three groups

sex	Group C (n=12)	Group M (n=12)	Group T(n=12)
Male (n=17) 47.2%	6	5	6
Female(n=19) 52.8%	7	6	6

n: number of patients, p-value 0.05

Table 3: The mean early hip joint movement time after operation in the three groups

Early movement	Group C (n=12)	Group M (n=12)	Group T(n=12)	P-value
	30±6.20 (hours)	24±3.50 (hours)	24±3.00 (hours)	
	p value= 0.004	p value= 0.006	p value= 0.006	

n: number of patients

Table 4: post-op time of back the patient to ordinary activity in the three groups

Ordinary activity	Group C (n=12)	Group M (n=12)	Group T(n=12)	P-value
	45±5.2 (days)	45±3.5 (days)	45±2.7 (days)	
	p value= 0.004	p value= 0.006	p value= 0.006	

n: number of patients

Table 5: Satisfaction of patient in the three groups

Satisfaction	Group C (n=12)	Group M (n=12)	Group T(n=12)	P-value
	4±2	8±2	7±1	
	p value= 0.004	p value= 0.006	p value= 0.006	

n: number of patients

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