Journal of International Medical and Biological Sciences
ISSN: 2617-8885
International Peer Reviewed
JIMBS

Original Article

Intravenous Administration of Nefopam Against Paracetamol as Postoperative Analgesia in Women Experiencing Repairs of Vaginal Wall Under Spinal Anesthesia: A Comparative Study

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Received: February, 2023, Accepted and Published online: June, 2023,

Abstract:

Background: *Pain is not always proportional to the magnitude of the surgical aggression to the tissues, as it is highly variable from one patient to another, and even around 10-15% of those operated on suffer no pain or only very mild pain. Thus, there is a more or less significant dissociation between nociception and pain, a well-known phenomenon in the case of chronic pain syndromes.*

Objective: *To comparison the outcome of preventive administration of IV of Nefopam versus Paracetamol as postoperative analgesia in patients undergoing vaginal wall repairs under spinal anesthesia.*

Patients and method: *A comparative study carried in our hospital during the period from the 1st of Jan 2020 to the end of Dec 2022, in which 90 patients were involved and divided in to three groups.*

Results: *significant difference was found only after 6 and 9 hours post operatively (P<0.001) and no differences found in the rest of times, dose of analgesia by tramadol in one day duration show that significant decrease in N group than that in other two groups*

Conclusion: *Intravenous Preventive administration of nefopam is effective for postoperative analgesic effect after spinal anesthesia in women undergoing vaginal repair than that occurred by IV Paracetamol.*

Keywords*: nefopam, paracetamol, postoperative analgesia, vaginal wall repair*

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Citation*: Al-Sahhaf L.N.M, Ibrahim B.H, Saeed M.R.M, Intravenous Administration of Nefopam Against Paracetamol as Postoperative Analgesia in Women Experiencing Repairs of Vaginal Wall Under Spinal Anesthesia: A Comparative Study. JIMBS 2023; 9 (2):44*

1. INTRODUCTION

Post-operative pain

Scientific evidence indicates that adequate treatment of acute pain reduces morbidity after surgery, reports positive effects to long-term, including less postoperative cognitive decline, better quality of life and a lower risk of developing chronic pain and reduces costs toilets. However, despite these advantages, recent studies suggest that the 80% of patients experience pain after surgery, 11% severe pain, and that this is responsible for delays in recovery in 24% of patients undergoing ambulatory surgery , which indicates that despite the development of new drugs and the improvement of analgesic techniques, postoperative pain remains still undervalued and mistreated. An important cause of this problem may be the neglect the pathophysiology of acute postoperative pain (1). Pain normally fulfills an adaptive function. Like any modality sensory, involves both perception and discernment (what is happening now is unlike from the preceding perception). different mechanisms physiological factors lie beneath these two functions. There are precise "pain" receptors (nociceptors) and their perception can be meaningfully decreased (through controls inhibitory) or augmented (primary and secondary hyperalgesia) at the peripheral and central. This ability to modulate the perception of pain is the basis physiology of discrimination. Unlike other sensory modalities, Pain perception is strongly linked to the immune system (inflammatory reaction secondary to tissue destruction). Pain can be powerfully amplified by activation of peripheral immune cells associated with peripheral nerves and by activation of immune-like glial cells (microglia and astrocytes) within the central nervous system (2). Preventive analgesia directly previously the surgical operation is an active measure in the inhibition of post operative pain (3). Paracetamol is one of the common analgesic medications that used for mild to moderate type of pain. It has slight side effects and it does not inhibit the clotting of blood. Intraoperative paracetamol given to the patients before the end of surgical procedure is an actual measure in the management of post operative pain (4). Nefopam is a painkiller. It treats moderate pain, for example after an operation or a serious injury, and can be used when paracetamol or naproxen do not act on patients' pain. Nefopam is a centrally-acting non-opioid analgesic and its plasma peak concentrations are touched after half hour of continuous intravenous infusion and its effect last for 6 hours (5,6).

The lifetime risk of a woman being operated on for prolapse is 11% and approximately one third requires surgical reintervention (7). It has been estimated that the demand for this surgery would increase by around 45% in the next 30 years, given demographic changes (8). Anterior vaginal prolapse repair represents one of the most challenging aspects of pelvic reconstructive surgery in terms of achieving an adequate result and maintaining it in the long term. Recurrence after anterior colporrhaphy of up to 40% has been described (9,10).

2. PATIENTS AND METHODS

A comparative study carried in our hospital during the period from the 1st of Jan 2020 to the end of Dec 2022, in which 90 patients were involved and divided in to three groups.

Method

All patients were given 10 ml of normal saline; the 25 gauge of spinal needles were used to administer 2.5 ml bupivacaine 0.5% for spinal anesthesia at the interspace between lumber 3 and lumber 4.

Group C (control group): IV infusion of 50 ml of normal saline were given over 15 minutes. While 1 gram of paracetamol had been given over same period (15 minutes) in paracetamol group, and IV infusion of 20 mg nefopam in 50 ml normal saline had been given over 15 minutes. Then by using VAS we assessed the post operative pain (measured every 3 hours/24 hours). Then administration of tramadol intravenously in a dose of 50 mg was given as a saving analgesic agent. All these were recorded (i.e: at which time the first rescue analgesic happened and the total analgesic dose for one twenty four hours).

3. RESULTS

This study included 90 women who undergo a surgical procedure for repair of vaginal wall, and divided into three groups. The mean age of control group was (31.6±8.2) years while (31.2±8.4) in N group, and (32.1±9.7) in P group with no significant differences found (P>0.05). mean BMI of control group was (27.3±2.2) kg/m2 while (28.0±3.4) kg/m2 in N group, and (27.9±3.1) kg/m2 in P group with no significant differences found (P>0.05), and mean time of surgery of control group was (90.8±19.7) min while (109±10.4) min in N group, and (97.3±13.8) min in P group with highly significant differences found (P<0.001) All finds are shown in (**Table 1**). Comparison between the studied groups according to VAS every 3 hours post operatively show that the significant difference was found only after 6

and 9 hours post operatively (P<0.001) and no differences found in the rest of times (**Table 2**). Dose of analgesia by tramadol in one day duration show that significant decrease in N group than that in other two groups (**Table 3**).

Table 1. Demographic criteria of the studied groups

Variables	Control group (n=30)	Nefopam group (n=30)	Paracetamol group (n=30)	P. value
Age/ year	31.6±8.2	31.2±8.4	32.1±9.7	0.884 ns
BMI	27.3±2.2	28.0±3.4	27.9±3.1	0.832 ns
Time of surgery/min	90.8±19.7	109±10.4	97.3±13.8	<0.001 sig

sig: significant, ns: not significant

Table 2. comparison between the studied groups according to VAS.

Time (hours)	Control group (n=30)	Nefopam group (n=30)	Paracetamol group (n=30)	P. value
3	1.49 ± 1	1.41 ± 0.9	1.34 ± 0.7	Ns
6	4.43 ± 1.23	2.8 ± 1.1	2.2 ± 1.2	<0.001sig
9	3.9 ± 1.4	2.9 ± 1	2.4 ± 0.7	<0.001sig
12	2.7 ± 0.5	2.6 ± 0.4	2.7 ± 0.8	0.748 ns
15	2.5 ± 0.6	2.4 ± 0.4	2.6 ± 0.7	0.392 ns
18	2.2 ± 0.4	2.1 ± 0.1	2.2 ± 0.5	0.492 ns
21	2.1 ± 0.7	2.0 ± 0.5	2.0 ± 0.3	0.625 ns
24	1.9 ± 0.3	1.8 ± 0.1	1.9 ± 0.2	0.316 ns

Values presented as mean ± standard deviation,
sig: significant, ns: not significant

Table 3: comparison between the dose of analgesia in the studied groups

	Control group (n=30)	Nefopam group (n=30)	Paracetamol group (n=30)	P. value
Dose of analgesia in mgs in 24 hours	85.38±20.6	32.49±12.7	39.1±17.3	<0.001 sig

sig: significant

4. DISCUSSION

Acceptable postoperative analgesia is very imperative for the precise care of the patients and well thought-out as an important human right (11). The current study aimed to assess the influence of the administration of IV infusion two analgesic medication (Paracetamol and Nefopam) on the consequence of post operative pain control after vaginal wall repair surgery. The most common finding in the current study is the significant difference between the studied groups regarding VAS at 6th, and 9th postoperative hours with lengthy period of postoperative analgesia and decreased of total analgesic dose in Paracetamol and Nefopam groups than control group. Paracetamol is extensively used for monitoring moderate postoperative pain (12). This done by its effect of anti – prostaglandins in addition to little cyclooxygenase inhibitory properties (13). Nefopam produces its analgesic effect through a non-opioid centrally acting mechanism (14). The present study is in contract with the study of S. Zhang et al (15) that discovered Nefopam can deliver a well and harmless analgesic effect than tramadol and can decrease the total overwhelming dose of tramadol postoperatively. In a study conducted by V. Martinez et al, found that that nefopam was higher to most analgesics used alone in relations of decreasing morphine ingesting with patient control analgesia (16) which is run in parallel with the result of the current study. Concerning the effect of preemptive administration of intravenous paracetamol, A. W. H. Barazanchi et al, found that administration of paracetamol preoperatively is optional for giving the postoperative analgesia to the patients (17). The current study is in agreement with other previous Iraqi study carried by Ahmed ZN et al, that's revealed same conclusion in our study in which preemptive administration of Nefopam is safer and more effective to decrease postoperative pain than that occurred by IV paracetamol (18).

5. CONCLUSION

Intravenous Preventive administration of nefopam is effective for postoperative analgesic effect after spinal anesthesia in women undergoing vaginal repair than that occurred by IV Paracetamol.

Ethical Issues: All ethical issues were approved by the authors from the Iraqi Ministry of Health. Verbal and signed informed consents were obtained from all patients who included in the study during their first visit.

Conflict of interest: None

Source of funding: Authors declared no funding agency, or organization

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