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Effects of warmed carrier fluid on nefopam injection- induced pain

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Statement of the Problem: Nefopam is a non-opioid, non-steroidal analgesic drug with fewer adverse effects than narcotic analgesics and nonsteroidal anti-inflammatory drugs, and is widely used for postoperative pain control. Because nefopam sometimes causes side effects such as nausea, vomiting, somnolence, hyperhidrosis and injection-related pain, manufacturers are advised to infuse it slowly, over duration of 15 minutes. Nevertheless, pain at the injection site is very common. Therefore, we investigated the effect of warmed carrier fluid on nefopam injection-induced pain.

Methodology & Theoretical Orientation: A total of 48 patients were randomly selected and allocated to either a control or a warming group. Warming was performed by diluting 40 mg of nefopam in 100 ml of normal saline heated to 31-32°C using two fluid warmers. The control group was administered 40 mg of nefopam dissolved in 100 ml of normal saline stored at room temperature (21-22°C) through the fluid warmers, but the fluid warmers were not activated.

Findings: The pain intensity was lower in the warming group than in the control group (P<0.001). The pain severity and tolerance measurements also showed statistically significant differences between groups (P<0.001). In the analysis of vital signs before and after the injection, the mean blood pressure after the injection differed significantly between the groups (P=0.005), but the heart rate did not. The incidence of hypertension also showed a significant difference between groups (P=0.017).

Conclusion & Significance: Use of warmed carrier fluid for nefopam injection decreased injection-induced pain compared to mildly cool carrier fluid.

Recent Publications:

1. Girard P, Chauvin M and Verleye M (2016) Nefopam analgesia and its role in multimodal analgesia: A review of preclinical and clinical studies. Clinical and Experimental Pharmacology and Physiology 43:3-12.
2. Kim Y M, Lim B G, Kim H, Kong M H, Lee M K and Lee I O (2014) Slow injection of nefopam reduces pain intensity associated with intravenous injection: a prospective randomized trial. Journal of Anesthesia 28:399-406.
3. Dordoni P L, Della Ventura M, Stefanelli A, Iannace E, Paparella P, Rocca B, et al. (1994) Effect of ketorolac, ketoprofen and nefopam on platelet function. Anaesthesia 49:1046-9.
4. Bhatt A M, Pleuvry B J and Maddison S E (1981) Respiratory and metabolic effects of oral nefopam in human volunteers. British Journal of Clinical Pharmacology 11:209-11.
5. Evans M S, Lysakowski C, Tramer M R (2008) Nefopam for the prevention of postoperative pain: quantitative systematic review. British Journal of Anaesthesia 101:610-7.

Biography

Hyung Rae Cho is an expert in Pain Management. He served as a Military Anesthesiologist for three years in South Korea, the last division on the planet. He has been a Professor of medical school and now he is engaged in education, research and clinical care at Myongji Hospital in South Korea.

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