

***The comparative study of Morphine PCA pump and sublingual Buprenorphine efficacy in post-operative analgesia after orthopedic surgery of the lower limbs***

***Abstract***

***Background & Objective:*** Postoperative pain is a common side effect following surgery that can postpone patient's discharge from hospital. Pain control in orthopedic patients can significantly reduce joint movement problems and patients can easily going back to normal life. In this study we aimed to compare the efficacy of Morphine PCA pump with sublingual Buprenorphine in postoperative pain control following orthopedic surgery of the lower limbs.

***Methods:*** This double blind clinical trial was conducted on 60 patients referred orthopedic surgery of the lower limbs. They were in classes I and II of the American Society of Anesthesiologists (ASA) and were under a spinal anesthesia. Patients were divided into two groups of Buprenorphine (0.4mg BD, sublingually) and Morphine (20mg in 100cc). This trial were practiced after surgery and in the recovery room. Amount of Pethidine usage, pain score and side effects including nausea and vomiting, level of sedation and itchiness were recorded at 1, 8, 16 and 12 hours after surgery.

***Results:*** 60 Patients in Morphine and Buprenorphine groups were studied. There was no significant difference between the two groups in terms of gender distribution ( $p=0.766$ ), average age ( $p=0.350$ ), weight ( $p=0.195$ ), ASA score ( $p=0.519$ ) and operation time ( $p=0.510$ ). Average pain score in the Buprenorphine group was significantly lower than the Morphine group in 8 ( $p=0.025$ ), 16 ( $p<0.044$ ) and 24 ( $p<0.003$ ) hours after surgery. Pethidine usage in first 24 hours after surgery in Buprenorphine group ( $38.5\pm 15.60$  mg) were significantly lower than the Morphine group ( $49.33\pm 19.02$ mg) ( $p=0.019$ ). There was no significant difference between the two groups in terms of side effects (nausea and vomiting, level of sedation and itchiness).

***Conclusion:*** This study showed that Sublingual Buprenorphine administration after orthopedic surgery of the lower limbs can lead to better postoperative pain control in comparison to Morphine PCA pump. Also it has minimal side effects and is compatible with Morphine in this field.

***Keywords:*** Morphine PCA pump, Sublingual Buprenorphine, Pain management, orthopedic surgery of the lower limbs