Title: DRUG USE PATTERN IN PATIENT-CONTROLLED ANALGESIA

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Introduction. Patient-Controlled Analgesia (PCA) is a promising new parenteral analgesic administration technique which has been investigated principally as a treatment modality for postoperative pain.[1,2] We have performed a study examining the drug use pattern obtained with PCA compared to that seen with p.r.n. intramuscular dosing.

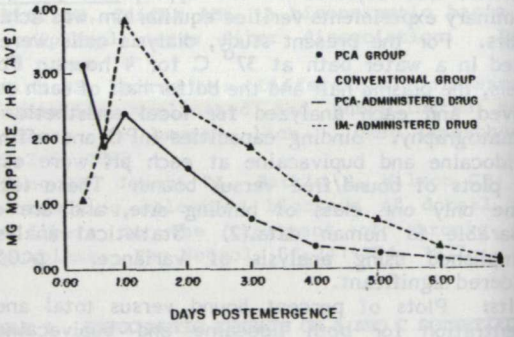
Methods. The study was designed as a randomized comparative investigation on patients undergoing gastric bypass surgery (permission granted from the Human Investigations Committee, University of Kentucky; informed consent was granted by all study subjects). Patients had no medical problems other than morbid obesity, were nonsmokers, and were taking no centrally active medications. Anesthetic premedication, anesthesia, and postoperative antiemetic therapy were standardized. Patients using the PCA device were given the device upon emergence from anesthesia and used the device until the morning of the third postoperative day, approximately 60 hours postemergence. Morphine sulfate was the study analgesic. Initial bolus dose with the device was 0.6 mg/m^2 BSA. Bolus size was decreased in increments of 0.2 mg/m^2 BSA if patients reported sedation with a single bolus. Bolus size was increased by the same increments if patients reported no analgesic effect with a single bolus. A "lock-out interval" of six minutes between boluses was used. "Conventionally-dosed" patients received morphine intramuscularly, 8-12 mg q4-6 hour on a p.r.n. basis. PCA group patients received this same regimen of intramuscular morphine upon discontinuation of the PCA device. Both patient groups were visited by the principal investigator on a b.i.d. schedule.

Results. Nineteen patients were studied (10 PCA, 9 Conventional group). Drug consumption curves are shown in the figure. Average drug consumption was similar during the first 60h postoperatively (95 mg for PCA group vs. 91 mg for Conventional group). Conventionally-dosed patients required an average of 4 times more analgesic after the first 60 hours, however (74 mg vs. 18 mg, $p<.001$). Total morphine consumption for the postoperative period was thus less for PCA-dosed patients ($p<.03$), although analgesia, assessed by questionnaire, was more satisfactory in PCA-dosed patients ($p<.03$).

Discussion. Following the immediate postoperative period, initial PCA use decreases analgesic drug need for the remainder of the postoperative course while affording improved analgesia. Much less intramuscularly-administered medication was required by PCA-group patients after discontinuation of the PCA device. This observation suggests that the decreased drug need resulting from initial PCA therapy is a phenomenon not dependent soley on coincidental use of the PCA device.

References.

1. Editorial: Patient-controlled analgesia. Lancet i:289-90, 1980
2. Medical News: Results are better when patients control their own analgesia. JAMA 247:945-7, 1982



Morphine consumption as a function of time postemergence.