

Patient Controlled Analgesia (PCA) Opioid Consumption After Laparoscopic Cholecystectomy in Sickle Cell Disease

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Introduction: Pain control is a primary goal in the perioperative management of patients with sickle cell disease (SCD). PCA using morphine is frequently used to achieve this goal. However, Medline and Embase searches revealed no published studies examining the efficacy of postoperative PCA in SCD. The aim of the study was to compare postoperative PCA opioid consumption and pain scores in SCD patients with those in a control group of non-SCD patients undergoing laparoscopic cholecystectomy, the most common surgical procedure performed for patients with SCD (1).

Methods: After Research Ethics Board approval we searched the Acute Pain Service (APS) database at our institution to identify all patients who were referred for PCA after laparoscopic cholecystectomy from December 1997 to December 2003. After reviewing the pain service records, the medical records were reviewed retrospectively. Specific data collected for each patient included demographics, PCA morphine consumption, pain scores, use of adjuvant analgesics, and outcome. Statistical significance ($P < 0.05$) was determined using Student's *t*-test and chi square analysis where appropriate.

Results: Of 23 patients referred to the APS for PCA following laparoscopic cholecystectomy, 13 had SCD. The mean age of SCD and control patients was 13.4 ± 2.4 yrs and 12.9 ± 1.8 yrs, respectively. One SCD patient developed acute chest syndrome while on PCA and was excluded from the analysis. There were no significant differences in weight, duration of anesthesia, or initial PCA settings. Postoperative PCA morphine consumption was significantly greater in SCD patients than in controls at 24 hrs and 48 hrs (figure 1). The proportion of patients on PCA at 72 hrs was significantly greater in the SCD group than in controls ($P < 0.05$) (figure 1). Duration of PCA use in SCD patients was also significantly greater than in controls (figure 2) ($P < 0.01$). The mean postoperative pain score in the first 24 hrs was significantly greater in SCD patients (5.3 ± 1.5) than in controls (3.9 ± 1.5) ($P < 0.05$). The use of adjuvant non-opioid analgesics while on PCA was greater among SCD patients than in controls ($P < 0.05$). There were no documented episodes of postoperative vasoocclusive crises.

Discussion: Overall postoperative PCA morphine consumption was approximately three-fold greater in SCD patients than in controls. The duration of PCA use among SCD patients was more than double that for controls. SCD patients had significantly higher pain scores and used more adjuvant non-opioid analgesics in the postoperative period. These findings likely have a multifactorial origin, and could be attributed in part to differences between the groups in pain perception, tolerance to analgesics, morphine pharmacokinetics, surgical trauma, and attitudes of health care professionals.

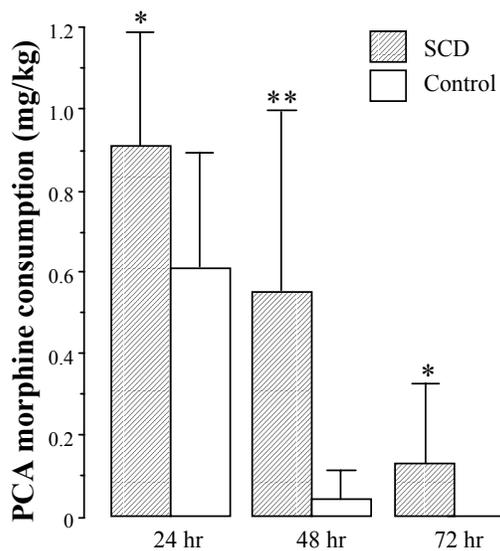


Figure 1.

* $P < 0.05$ versus control ** $P < 0.01$ versus control

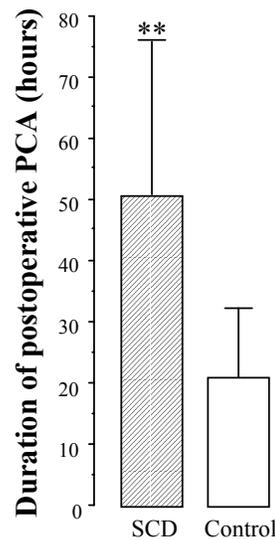


Figure 2.

Refs: 1.Koshy M., et al. Blood 1995