

Benjamin Lebwohl
 9/27/05
 Senior medicine EBM project

20 y/o M h/o sickle cell disease, multiple recent ED visits and admissions for VOC's, most recent admission x 12 days when he was Rx'd with q4h dilaudid IM (declined PCA), now readmitted with persistent pain. Team is now offering PCA in hopes that it will improve pain control and decrease length of stay.

Question: in patients with sickle cell disease who are admitted with a vaso-occlusive crisis, is patient-controlled-analgesia (compared to prn administration of narcotics) superior in terms of symptom control and decreased length of stay?

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1. Jacob E. Mlaskowski C, Savedra M, Beyer JE, Treadwell M, Styles L. **Management of vaso-occlusive pain in children with sickle cell disease.** [Journal Article] *Journal of Pediatric Hematology/Oncology*. 25(4):307-11, 2003 Apr. UI: 12679645
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2. Johnson L. **Sickle cell disease patients and patient-controlled analgesia.** [Journal Article] *British Journal of Nursing*. 12(3):144-53, 2003 Feb 13-26. UI: 12610369
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3. Shapiro BS, Cohen DE, Howe CJ. **Patient-controlled analgesia for sickle-cell-related pain.** [Journal Article] *Journal of Pain & Symptom Management*. 8(1):22-8, 1993 Jan. UI: 8482890
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4. Gonzalez ER, Bahia N, Harison LA, Ware D, Bull DS, OrriatL JP, Lehmann ME. **Intermittent injection vs patient-controlled analgesia for sickle cell crisis pain. Comparison in patients in the emergency department.** [Clinical Trial. Journal Article. Randomized Controlled Trial] *Archives of Internal Medicine*. 151(7):1373-8, 1991 Jul. UI: 2064488
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5. Hullbrook CT. **Patient-controlled analgesia pain management for children with sickle cell disease.** [Journal Article] *Journal of the Association for Academic Minority Physicians*. 1(3):93-6, 1990 UI: 2136624
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Intermittent injection vs patient-controlled analgesia for sickle cell crisis pain. Comparison in patients in the emergency department.

Archives of Internal Medicine. 151(7):1373-8, 1991 Jul.

Abstract

BACKGROUND.--The purpose of this study is a prospective assessment of morphine sulfate administration by intermittent intravenous (IV) injections (Int-IV) vs patient-controlled analgesia (PCA) in patients in the emergency department (ED) with sickle cell crisis pain. **METHODS.**--Patients were at bed rest and received intravenous hydration. Linear analog scale for pain intensity and verbal pain scale, level of alertness, and vital signs were assessed prior to therapy, every 60 minutes thereafter, and at the time of discharge from the ED. Patients were randomized to Int-IV or PCA. During phase 1, patients in the Int-IV group received morphine sulfate 4 mg IV every 30 to 60 minutes as necessary for a linear analog scale for pain intensity greater than 50 mm. The patients in the PCA group received morphine sulfate 2 mg bolus then 1.0 mg with a 6-minute lockout. During phase 2, patients in the Int-IV group received morphine sulfate 8 mg IV every 30 to 60 minutes as necessary for a linear analog scale for pain intensity greater than 50 mm. The patients in the PCA group received morphine sulfate 5 mg bolus then 2.7 mg with a 10-minute lockout. Data were analyzed by unpaired t test, general linear modeling, Mann-Whitney U test, and chi 2 test. **RESULTS.**--During phase 1, 10 patients (28.3 +/- 7.3 years) received Int-IV and 10 patients (33.9 +/- 12.5 years) received PCA. Treatment groups did not differ significantly regarding duration of pain, amount of morphine administered, linear analog scale for pain intensity, verbal pain scale, level of alertness, or vital signs except for a significantly lower final respiratory rate with Int-IV. In phase 2, 12 patients (28.4 +/- 5.6 years) received Int-IV and 13 patients (26.8 +/- 8.1 years) received PCA. The PCA groups had a significantly shorter elapsed time between onset of pain and treatment (7.3 +/- 6.5 hours) when compared with the Int-IV group (18 +/- 16.9 hours). Treatment groups did not differ significantly with respect to total amount of morphine administered, linear analog scale for pain intensity, verbal pain scale, vital signs, or level of alertness. The PCA group had a significant reduction in length of stay in the ED during phase 2 when compared with phase 1. The ED discharge rate and the incidence of side effects did not differ significantly between groups. **CONCLUSION.**--At both the low- and high-dose regimens, PCA is equally safe and effective and may be used in place of Int-IV administration of morphine in the ED treatment of sickle cell crisis pain.

| | Study | My patient |
|----------------------------|---------------------|---------------------|
| Patient population/setting | ED | Hospital ward |
| Intervention | Morphine PCA | Dilaudid PCA |
| Comparison | IV morphine q1h prn | IM dilaudid q4h prn |
| Outcome | Pain control/LOS | Pain control/LOS |

Problems with the study

Full text not available online (1991)

Small number of patients

Applicability (setting, interventions, comparison)

Not blinded

Conclusion: In patients with sickle cell crises in the ED, PCA administration appears equally safe and effective compared to prn narcotic use, results in a shorter duration between pain onset and treatment, and may result in a decreased length of stay.