

Evaluation of Opioid Consumption in Sickle Cell Pain Crisis after Implementation of Multimodal Analgesia: A Retrospective Chart Review

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Sickle cell disease (SCD) is an inherited disorder in which red blood cells (RBCs) adapt a “sickle” shape and cannot carry oxygen efficiently due to abnormal hemoglobin (HbS). Most SCD patients experience chronic, daily pain; but are often hospitalized due to excruciating, breakthrough pain known as a “sickle cell anemia crisis.” The standard of treatment is intravenous opioids, as current clinical guidelines do not recommend non-opioid analgesics due to lack of substantial supporting literature. Yet, consistent opioid therapy may produce unfavorable adverse effects as well as dependence and tolerance. Researchers have questioned whether multimodal analgesia – the process of utilizing non-opioid adjuncts in addition to standard opioid therapy – can reduce opioid consumption in hospitalized SCD patients. The purpose of this study was to evaluate if opioid consumption was reduced in adult sickle cell disease pain crisis after implementation of multimodal analgesia. We performed a retrospective chart review of adult inpatients (LOS > 1) admitted between January 1, 2013 and December 31, 2017 at a community medical center in New Jersey. We compared opioid consumption (in Morphine Equivalent Dose, MED) between the pre-multimodal analgesia (n = 183 admissions) and post-multimodal analgesia (n = 132) periods after implementation of an in-hospital cultural change by a pain management nurse practitioner in 2015. The average total MED per admission was higher in the post-multimodal analgesia period (1763.2 MED) than the pre-multimodal analgesia period (2283.9). NSAIDs were the most frequently used non-opioid analgesics in the pre and post periods (37.6% and 41.1%, respectively). Admissions in the post period experienced a greater average reduction in pain than those in the pre period (3.0 > 2.1, NRS scale). This data suggests that while non-opioid adjuncts may help manage sickle cell pain crisis and therefore improve health outcomes, further data is required to study potential reductions in opioid requirements. Future multi-center studies with larger sample sizes may be useful. Supported by the Grover Scholar Fund.