

Parent/Nurse Controlled Analgesia or Patient Controlled Analgesia by Proxy: An Interim Analysis of a National Survey

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Introduction: Patient-controlled analgesia (PCA) has become a common technique for pain control in adults, adolescents, and older children. Because of their developmental and physical inability to use PCA, younger children and children with developmental or physical handicaps cannot always benefit from this therapy. As an alternative, some children are treated with parent/nurse controlled analgesia (PNCA or PCA by proxy). Recently, a “safety alert” by the Joint Commission on Accreditation of Health Care Organizations (JCAHO) has advocated against this practice citing safety concerns. The purpose of this study is to assess current practices implemented in the United States for pediatric pain management including the current use of PNCA.

Methods: After IRB and Society for Pediatric Anesthesia (SPA) approval, an on-line pediatric pain management cross-sectional, descriptive survey was distributed to SPA members. The survey consisted of 58 questions. The sections of the survey to be discussed in this abstract include demographics, dedicated pain service existence and direction, use of PNCA and who could trigger the pump (nurse, parent or both), monitoring regimens, the need for rescue naloxone, and patient deaths secondary to IV opioid therapy.

Results: *Demographics:* Two hundred eighteen SPA members responded, providing data from 207/400 (52%) of hospitals polled. Over 70% of respondents practice anesthesia at academic institutions, with 51% practicing at free-standing children’s hospitals. *Dedicated Pain Service:* Approximately 60% (126/210) of all respondents and 100% of those surveyed who practice at a free-standing children’s hospital, have a dedicated pain service, predominantly under the direction of the Department of Anesthesiology (>90%). Daytime coverage of the service is by both physicians (51%) and nurses (46%), and nighttime coverage is predominantly physician based. *Use of PCA and PNCA:* Over 90% (197/208) of institutions surveyed are able to provide IV PCA to children; only 40% provide PNCA. Over 50% of respondents treat between 100 and 1,000 pediatric patients annually with IVPCA, while most providers of PNCA treat < 500 patients annually with this modality. At institutions where PNCA is available, 80% allow nurse bolus dosing while < 50 % allow parental bolus dosing. Eleven percent (17/154) of respondents’ institutions discontinued PNCA following the JCAHO sentinel event alert, while 51% (78/154) have not. *Patient monitoring and complications:* Regardless of method of IV opioid delivery (with or without PCA or PNCA), pulse oximetry is used on average for 80% of patients, followed by ECG and respiration (approximately 26%). This monitoring is maintained during the entire course of opioid therapy for the majority of patients. Over the past year, 142 patients were reported to have received naloxone to counteract the cardiopulmonary side effects of opioids. Approximately 73% of these patients were receiving IVPCA with or without a continuous infusion, 25% were receiving non-IVPCA continuous opioid infusions, and <2% were reported to be receiving PNCA. In addition, over the past 5 years, 14 deaths were reported by respondents to be secondary to opioid administration with half of these deaths occurring in patients receiving continuous IV opioid infusions (non PCA, non PNCA).

Discussion: Pediatric pain management requires well organized, protocol driven patient care to maximize benefit and minimize risk. At many institutions this is accomplished by provision of a

dedicated pain service under the direction of Departments of Anesthesiology and continuous patient monitoring protocols. In this study, we neither know the total number of patients treated (denominator) nor the actual complication rate (numerator). While there are a number of different ways to provide IV opioid analgesia, PCA appears to be a widely available modality, and PNCA, while less common, is still being utilized by a significant number of institutions. Life threatening risks associated with all modalities of opioid infusion therapy, while rare, do exist. Although PNCA has been singled out as being disproportionately unsafe, this conclusion is not supported by the incidence of recalled adverse events in this study. Finally, this study highlights the need for a national registry and database to improve the safety of patient analgesic delivery systems in children.