[A-9] Our data confirm: Placement of epidural in neonates allows early extubation

Malek K, Keyser A, Idowu T, Jain R, Matuszczak M
University of Texas Health Science at Houston , Houston , Texas, USA

Background: Epidural anesthesia has been shown to decrease intraoperative opioid requirements, improve post-operative outcome by allowing earlier extubation, easier work of breathing and earlier return of bowel function. Neonates especially premature neonates undergoing major surgery would strongly benefit from advantages of epidural anesthesia and thus would be at lower risk for post-operative prolonged ventilation, post-operative apnea and pulmonary infection. The aim of this paper was to evaluate the effect of epidural anesthesia on the time for extubation and need for re-intubation in neonates having major abdominal or thoracic surgery within our institution. We looked into the Pediatric Regional Anesthesia Network (PRAN) Data collection that our institution holds and studied the rate and time for extubation as well as the frequency of postoperative re-intubation in term and premature neonates coming from the Neonatal Intensive Care Unit (NICU) and undergoing major surgery.
Methods: Data were collected prospectively within the Pediatric Regional Anesthesia Network (PRAN) after IRB approval. We included all NICU patients having major surgeries under general anesthesia combined with continuous epidural infusion from May 2010 to October 2013. The decision to place an epidural catheter was dependent on relative or absolute contra-indications for neuraxial anesthesia; including but not limited to parents refusal, coagulopathy, anatomical deformity, infection at the insertion site, neonates who were already intubated, experience of the pediatric anesthesiologist. 42 neonates received an epidural anesthesia. We looked at time for extubation, duration of epidural analgesia and need for re-intubation. As part of our general standardized anesthetic protocol, neonates who do not receive an epidural are post-operatively invasively ventilated for at least 3 days and received a morphine drip for pain management. 22/42 patients receiving epidural anesthesia were extubated in the operating room; 1/42 patient was electively placed on CPAP (being on CPAP pre-operatively), another 5 were extubated within few hours after surgery. Of these 28 neonates 3 patients required re-intubation in the 24 hours following surgery (one secondary to tracheomalacia, one secondary to stridor, one secondary to apnea spells). 2 patients stayed intubated on surgeon’s request, and were extubated on POD1 as were 6 other patients. Of the remaining 6 intubated neonates, 4 were extubated on POD2, 1 on POD4, the last one on POD11. Premature neonates were as likely to be extubated as full-term neonates. More than half of the patients (24) received an epidural analgesia for 3 days.
Conclusions: In our institution epidural anesthesia in neonates undergoing major surgery is associated with a reduction in the need for post-operative ventilation in comparison with neonates receiving exclusively general anesthesia for similar procedures. The observed frequency of re-intubation was not very high; with a total of 3/28 neonates necessitated re-intubation in the post-operative period. Further studies are needed to reinforce the importance and benefits of epidural anesthesia in neonates undergoing major surgery.
