

[PR2-121] Efficacy of Maxillary Nerve Blocks for Cleft Palate Repair

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Introduction:

Cleft palate surgery is not only painful, but may also compromise the airway, especially in children with craniofacial abnormalities. Opiate analgesia has the potential to further compromise the airway. Bilateral maxillary nerve blocks, recently described for cleft palate repair (1,2), can provide analgesia with less risk of respiratory depression.

Experience with maxillary nerve blocks in the setting of international Operation Smile missions, as well as at Seattle Children's Hospital is described.

Methods:

With IRB approval, the PRAN database was accessed. Additionally, with permission, records from three international Operation Smile missions (Madagascar [2], Malawi) were reviewed and compared. Data was collected to include demographic information (patient age, gender, weight, height, craniofacial defects), depth to pterygoid plate, and supplemental analgesia requirements. Bilateral maxillary nerve blocks were performed as recently described (3). Depth to pterygoid plate was measured before advancing the needle into the sphenopalatine fossa. Efficacy of nerve block was determined by response to surgical incision and need for supplemental opioid analgesia. Pain scores were not used in view of variability in patient age, language and cultural barriers.

Results:

Twenty-three patients (age 11 months - 16 years, weight 8.2 - 52.7 kg) who underwent cleft palate surgery were reviewed from the PRAN database and compared to 63 patients (age 10 months - 9 years, weight 6 - 41 kg) from Operation Smile records. All patients in both groups and received a maxillary nerve block (bupivacaine 0.5%; dose 1-2 ml, median 1.5 ml). The depth to the pterygoid plate ranged from 15 to 25 mm, correlated with age, and showed some discrepancies between left and right sides (up to 6 mm difference). There were no complications from any of the blocks performed, and the majority of both groups showed no response to surgical incision. In the PRAN database group, all patients received morphine analgesia in PACU and multiple doses while in the hospital. In comparison, 51% of the Operation Smile group received a single dose of nalbuphine (0.5-1 mg/kg) within 1 hour in the PACU, and 49% did not require any supplemental analgesia in PACU. No further opioid analgesia was required in all Operation Smile patients. The combination of acetaminophen and ibuprofen provided adequate analgesia until discharge at 48 hours post-op.

Conclusion:

Based on the lack of response to surgical incision, maxillary nerve blocks are an efficacious alternative for analgesia in patients having cleft palate repair. Despite this, a reduced requirement for supplemental opioid analgesia in children of the Operation Smile group was noted compared to the PRAN group. This difference is difficult to explain, but is likely related to inherent differences in the expectations of the patient populations compared.

References:

1. Mesnil M, et al. *Pediatric Anesthesia*. 2010 Apr;20(4):343-349
 2. Captier G, et al. *J Craniofac Surg*. 2009 Jan;20(1):224-8
 3. Sola C, et al. *Pediatric Anesthesia*. 2012 Sep;22(9):841-6.
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