Association of Liposomal Bupivacaine on Opioid Consumption in the Pediatric Alveolar Cleft Population

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**INTRODUCTION:** Liposomal bupivacaine (LB) is a long-acting local anesthetic that has become a valuable tool in multimodal pain therapy for many adult surgical specialties. However, it has only recently been used in the pediatric population. Recent studies have shown that administration of LB in pediatric patients is safe and efficacious, particularly in the craniofacial population. Despite this, there has not been a study focusing on its use in alveolar cleft patients. We proposed that the use of surgical site infiltration with LB in this population would be associated with a decrease in postoperative opioid requirements following alveolar bone grafting.

**MATERIALS AND METHODS:** A retrospective cohort study was conducted that included patients who underwent alveolar bone grafting from November 2016 to December 2018 by 2 craniofacial surgeons at a tertiary craniofacial center. Data collected included technique of harvest (H-osteotomy, trap door ostectomy, and coring drill), laterality (left, right, or bilateral), demographics, and the use of LB. We then calculated the total opioid use through the end of postoperative day (POD) 1. All opioid amounts were corrected for patient weight and converted to an oral morphine equivalent (OME) for standardization. We then performed a multivariable linear regression modeling OME as a function of LB use while controlling for operative technique, laterality, age, sex, and weight.

**RESULTS:** Forty-four patients who underwent alveolar bone grafting (29 female and 17 male, ages 8–17 years with median age 11 years) were included in our study. Two of the 44 patients underwent separate right and left ABG operations for a total of 46 charted hospital admissions. The H ostectomy harvesting technique was used 23 times (53.3%), trap door ostectomy technique 13 times (29.5%), and the coring drill technique 10 times (22.7%). Eighteen (39.1%) patients used intravenous narcotics, 18 (39.1%) patients used oral narcotics, and 10 (21.8%) used no narcotics at all. Twenty-five (54.3%) patients received LB. Average hospital length of stay (LOS) was 1.6 days (SD, ±0.63), over which patients received on average 13.0 mg OME (SD, ±13.1 mg) up until the end of POD 1. On multivariable analysis, patients who received LB required 14.4 mg less of OME up until POD 1 (P = 0.007). There was no difference in hospital LOS (1.76 versus 1.4 days; P = 0.83) or number of postoperative visits within 30 days following surgery (2.1 versus 1.8; P = 0.09) between cohorts. Patients who underwent bilateral bone grafting had a longer LOS (1.5 versus 0.9; P = 0.0183). The LB cohort had reduced proportion of patients requiring intravenous narcotics (28% versus 52.4%) and oral narcotics (36% versus 42.8%) and had a higher proportion of patients who received no narcotics (36% versus 4.8%) (P = 0.027). LB use was not associated with overall hospital costs ($35,211 versus $36,622; P = 0.68).

**CONCLUSIONS:** Intraoperative surgical site infiltration of LB was associated with decreased postoperative opioid requirements following alveolar bone grafting. It can be an effective part of multimodal pain therapy in the pediatric population. Further studies will need to be conducted focusing on the association of LB on LOS and decreasing hospital cost.

**Primary Cleft Rhinoplasty: A 22-year Retrospective Review of a Single Technique

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**PURPOSE:** Repair of the cleft lip nasal deformity at the time of the initial cheiloplasty has become widely accepted owing to evidence of both improved outcomes and need for fewer revisions. Patients may require additional rhinoplasties before beginning school, if severe, and again in adolescence. Several primary rhinoplasty techniques exist, and few surgeons have long-term series of a single cleft rhinoplasty repair method. The senior author has over 20 years of experience performing the same primary cleft rhinoplasty repair based on a technique described by Salyer. The purpose of this study is to examine long-term outcomes of this technique.
METHODS: An Institutional Review Board-approved, retrospective review was conducted on all patients who underwent a cleft rhinoplasty by the senior author at the time of their primary cleft lip repair between January 1996 and January 2018. Patients above 3 years old at the time of the repair were excluded.

RESULTS: Of the 60 patients who met the inclusion criteria, cleft type was as follows: 22 UCL-L (36.7%), 10 UCL-R (16.7%), 12 UCL/P-R (20.0%), and 16 UCL/P-L (26.7). Thirty-seven (61.7%) were male, and 23 (38.3%) were female. Seventeen (28.3%) presented with other congenital comorbidities, most commonly cardiac. The median age at surgery was 3 months. Degree of lip clefting was noted for 57 patients, of which 31 (54.4%) were complete and 26 (45.6%) were incomplete. No patient had short-term complications related to their initial cleft lip and rhinoplasty repair, such as bleeding or airway compromise. Fifty-two (86.7%) patients had follow-up appointments in the medical record, with an average follow-up of 6.27 ± 5.56 years (0.01–19.3). Average age at last follow-up appointment was 6.60 ± 5.55 years (0.2–20.0). Thirty-three (51.9%) were above the ages of 3 and 5 years old, respectively, at last follow-up. None of the school-aged patients required additional surgical correction of the cleft nose deformity before beginning school. Eight (15.4%) patients had follow-up beyond 16 years, with ages ranging from 16 to 20. Two of these had definitive rhinoplasties as adolescents. Of the remaining 6 patients beyond 16 years old, none was seeking an additional rhinoplasty at last follow-up, and thus never required an additional nasal procedure beyond the rhinoplasty performed at the time of initial cleft lip repair.

CONCLUSIONS: This is one of the longest-running, single-surgeon cleft rhinoplasty review series. Our patient demographics are consistent with the literature. The cleft rhinoplasty technique described by Salyer results in no additional incisions, and has yielded excellent long-term results in this series. The senior author has not needed to perform elementary school age rhinoplasties on any patients, and the majority of patients with follow-up beyond 16 years (6 of 8, or 75%) have also not required a rhinoplasty in adolescence.

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Predicting and Managing Pediatric Postoperative Pain in the Age of Opioid Abuse

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PURPOSE: Opioid abuse and overdose have become an epidemic in the United States, and overprescribing by physicians has been shown to be a major contributor to this morbidity and mortality. The opioid epidemic is especially problematic in the pediatric population, as early exposure has been linked to potential future illicit drug use. Currently, it is common to prescribe pediatric patients opioids for postoperative pain control, although there is a lack of evidence for their necessity in pediatric ambulatory surgery. This study aims to investigate postoperative pain management in the ambulatory pediatric plastic surgery setting and the role of prescribed narcotics to guide future pain management of this vulnerable population.

METHODS AND MATERIALS: This is an observational, prospective study of patient pain management practices and their effectiveness. A questionnaire was developed to interrogate postoperative pain, narcotic use, and pain management practices. All assessing patients and parents of pediatric plastic surgery patients, ages 0–17, who underwent an ambulatory procedure by one attending surgeon from March 2018 to February 2019, were asked to participate in the study. The questionnaire was given at the first postoperative clinic visit. Supplemental clinical data were obtained from patient charts. T test and univariate analysis were performed to identify significant contributing factors of narcotic use.

RESULTS: Fifty-three patients participated in the study, 34% (18) males and 66% (35) females. Age ranged from 1 to 17, with an average of 8 years old. All patients were offered a prescription for narcotic pain medication, most commonly oxycodone, with 85% (45) filling the prescription, 38% (20) taking ≥1 dose of narcotics, and only 11% (6) taking ≥4 doses. Univariate analysis found no significant difference in the amount of narcotic used based on gender or age (odds ratio [OR], 1.03; P = 0.575; and OR, 0.904; P = 0.086, respectively). However, patient use of narcotic pain medication could be predicted based on type of procedure, comparing simple soft tissue lesion excision to all other procedures, such as otoplasty and rhinoplasty (OR, 0.207; confidence interval, 0.052–0.819; P = 0.025). Patients on average found the efficacy of the narcotics to be comparable to that of over the counter analgesics (4.2/5 on a 5-point scale).