

Opioid prescribing practices for at-risk pediatric populations undergoing ambulatory surgery

Extended author info:

1. Sterling Lee, BA

Medical student

University of Colorado School of Medicine

2. Ashley Reid, PharmD

Clinical Pharmacist

Children's Hospital Colorado, Department of Pharmacy

3. Suhong Tong, MS

Senior Research Instructor

Pediatrics, School of Medicine, Biostatistics and Informatics, Colorado School of Public Health / University of Colorado Anschutz Medical Campus

4. Lori Silveira, PhD

Assistant Professor

Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus

5. Melissa M. Masaracchia M.D.

Assistant Professor

Children's Hospital Colorado, Section of Pediatric Anesthesiology

University of Colorado, Department of Anesthesiology

13123 East 16th Avenue Box 090 Aurora, CO 80045

Phone: 720-777-2631, Email: Melissa.Masaracchia@childrenscolorado.org

Conflicts of Interest: None

Abstract

Introduction

Susceptible populations for post-surgical opioid-induced respiratory depression include sleep-disordered breathing and obese pediatric patients. Guidelines for opioid dosing in these groups have not been established. We investigated our institution's pain management in these groups for ambulatory surgery.

Methods

Opioid prescribing data for all outpatient surgery patients (ages 0-18) between 1/1/2019 and 6/30/2020 were retrospectively reviewed. Our sample included patients with sleep disordered breathing, obstructive sleep apnea, obesity or BMI-for-age >95th percentile. We reviewed demographics, opioid prescription descriptors, and prescribing surgical subspecialty. Oxycodone was classified low ($\leq 0.05\text{mg/kg/dose}$) and standard/high ($> 0.05\text{mg/kg/dose}$). Wilcoxon rank sum tests and Pearson's chi-square/Fisher's exact tests were utilized.

Results

4,674 patients generated an opioid prescription between 1/2019 and 6/2020. Approximately 173 patients had sleep disordered breathing, and 128 with obesity. Otolaryngology and orthopedics prescribed the majority of opioids. Otolaryngologists predominantly prescribed reduced doses. Obese and sleep-disordered breathing patients were mainly prescribed lower doses ($\leq 0.05\text{mg/kg}$, 71.4%) despite the size descriptor used for calculations. Patients with no comorbidities received standard doses (58.7%). For obese patients, 64% prescriptions were based on ideal weight; and providers primarily prescribed standard doses ($> 0.05\text{mg/kg}$, 83.3%, $p < .0001$). When providers used actual body weight, low-dose was used more often (53.7%,

p<.0001). Prescriptions for sleep-disordered breathing patients were based on actual weight (79.8%) and low-dosed (86.2%).

Discussion

There is minimal data on opioid prescribing practices in vulnerable pediatric populations for opioid-induced respiratory depression in the outpatient setting. Inconsistent patterns of prescribing demonstrates the need for detailed guidelines in appropriate pain management for children with comorbidities.

Key words: SDB, opioids, pediatrics, OSA, surgery, obesity