Opioid Prescribing Practices for At-Risk Pediatric Populations Undergoing Ambulatory Surgery

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INTRODUCTION

- At risk populations for post-surgical opioid-induced respiratory depression include pediatric patients with a history of sleep disordered breathing (SDB) and obstructive sleep apnea (OSA)
- Although monitoring in the inpatient setting allows for early recognition of opioid-related adverse events, children with the aforementioned comorbidities are presumably at even greater risk when undergoing outpatient procedures where this is far less vigilance.
- Guidelines for proper dosing in these groups have not been established.
- We sought to determine if surgical services at our institution modified prescriptions for certain comorbidities, weight or BMI-for-age percentiles.

METHODS

- Baseline opioid prescribing data for all outpatient surgery patients receiving an opioid prescription between 1/2019-6/2020 were retrospectively reviewed.
- Patients with SDB or obesity were identified using ICD-10 codes.
- To obtain more information about prescribing practices, we analyzed patient demographics, size descriptors used for calculations, and prescription characteristics (dose, duration, prescribing surgical service).

Table 1. Patient demographics by low-dose vs. standard-dose oxycodone

	Obese			OSA-SDB		
	Low dose (n = 68)	Standard dose (n= 60)	P value‡	Low dose (n= 147)	Standard dose (n= 26)	P value‡
Age in years*	14 (6, 20)	16 (5, 20)	**0.0388**	7 (1, 20)	9.5 (2, 21)	0.0854
ABW (kg)*	93 (47, 176)	115.5 (42.5, 183)	**0.0004**	34.3 (8.4, 92.8)	45.6 (13.5, 80.7)	0.1896
IBW (kg)*	58 (6, 93.7)	55.8 (21.8, 83)	0.5523	26.9 (9.2, 74.1)	35.1 (14, 69.6)	0.0828
BMI	33.3 (27, 52.4)	41.3 (25.4, 68.5)	**<.0001**	20.5 (12.8, 29.5)	21 (14, 28.5)	0.4870
ASA Status, n (%)			0.1580			0.8155
I	4 (6%)	2 (3.3%)		8 (5.4%)	2 (7.7%)	
II	33 (49.2%)	21 (35%)		86 (58.5%)	13 (50%)	
III	30 (44.8%)	37 (61.7%)		52 (35.4%)	11 (42.3%)	
IV	0 (0%)	0 (0%)		1 (0.7%)	0 (0%)	
Surgical Services n, (%)			**<.0001**			**<.0001**
GYNECOLOGY	2 (2.9%)	12 (20%)		0 (0%)	0 (0%)	
ORTHOPAEDICS	2 (2.9%)	13 (21.7%)		7 (4.8%)	6 (23.1%)	
OTOLARYNGOLOGY	50 (73.6%)	12 (20%)		128 (87.1%)	9 (34.6%)	
OTHERS	14 (20.6%)	23 (38.3%)		12 (8.1%)	11 (42.3%)	
Dose weight type			**<.0001**			0.3568
ACTUAL	36 (53.7%)	10 (16.7%)		119 (80.9%)	19 (73.1%)	
IDEAL	31 (46.3%)	50 (83.3%)		28 (19.1%)	7 (26.9%)	
Prescription duration †	5.1 (0.6, 8.1)	3.2 (1.3, 7)	0.4744	6.6 (1, 15.7)	3.9 (1.2, 11)	**0.0279**

* median (range)
† days prescribed (range)
‡ P-value compares low dose and high dose oxycodone prescribing by comorbidity
Abbreviations: ABW, actual body weight; IBW, ideal body weight; BMI, body-mass-index, ASA status, ASA Physical Status

Table 2. Oxycodone prescriptions compared by comorbidity status

Groups	Low Dose	Standard Dose	Overall p-value	P Value* (Control vs. Obese)	P Value* (Control vs. SDB)
Control	1805 (41.3%)	2568 (58.7%)	**<.0001**	**0.0073**	**<.0001**
Obese	68 (53.1%)	60 (46.9%)			
SDB	147 (85%)	26 (15%)			

* P-value compares low dose and standard dose oxycodone prescriptions by comorbidity status

RESULTS

- 4,674 patients received an opioid prescription after outpatient surgery. Of those, 173 patients had SDB and 128 were obese.
- Surgical subspecialties rendering the majority of opioid prescriptions included otolaryngology and orthopedics.
- Obese patients were more likely to be prescribed (64%) opioids using ideal weight at higher mg/kg doses (>0.05mg/kg, 83.3%, p<.0001).
- When providers used actual body weight, lower doses (mg/kg) were more likely to be use (53.7%, p<.0001).
- No prescriptions used lean body mass.

CONCLUSIONS

- Overweight/obese children were more likely to receive opioid doses outside the recommended range.
- Variability in prescribing patterns demonstrate the need for more detailed guidelines to minimize the risk of opioid-induced respiratory complications in vulnerable pediatric populations.