

Intravenous Acetaminophen: A study of effectiveness of practice of intraoperative administration in children undergoing adenotonsillectomy



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INTRODUCTION

Adenotonsillectomy is one of the most common procedures performed in children

Perioperative pain management is challenging due to concomitant presence of Obstructive Sleep Apnea (OSA) in this patient population

In our practice, Morphine is used primarily for analgesia. In addition, we use IV Acetaminophen and Toradol for opioid sparing

The objective of the study is to examine the impact of intraoperative administration of intravenous acetaminophen on opioid use pattern during the perioperative period in children undergoing adenotonsillectomy

METHODS

This was a retrospective study and data was collected from electronic medical record after an IRB approval

The inclusion criteria of study was children less than 10 years of age who had adenotonsillectomy and morphine only as an opioid in perioperative period

The exclusion criteria was children over 50 kgs, use of Dexmedetomidine, Total tonsillectomy, BMT with adenotonsillectomy, ASA class III & IV and use of opioid other than Morphine

Based on medical record review patients we divided patients into two groups depending on whether they received intravenous acetaminophen during the intraoperative period

Amount of morphine received during the surgery, in PACU and total at the time of discharge were calculated

Case control matching estimating common odds ratio utilizing the Mantel-Haenszel test was achieved using age, weight, gender, and presence of OSA as covariates. Student's t-test was used for continuous variables with significance at 95% confidence interval (CI).



Table 1 (Primary Outcome Measures)

	Control Group	IV Acetaminophen Group	P value
Intraop morphine	1.91±0.69 (1.77–2.06)	1.64±0.73 (1.48–1.79)	0.0100
PACU morphine	0.63±0.74 (0.48–0.79)	0.77±0.69 (0.62–0.91)	0.2070
Total morphine	2.45±1.02 (2.22–2.67)	2.41±1.02 (2.22–2.67)	0.8350
Intraop morphine per kg	0.098±0.028 (0.092–0.104)	0.081±0.026 (0.076–0.087)	0.0000
PACU morphine per kg	0.031±0.032 (0.024–0.037)	0.041±0.037 (0.024–0.037)	0.0390
Total morphine per kg	0.125±0.042 (0.116–0.133)	0.123±0.045 (0.113–0.132)	0.7680
% Receiving rescue doses	62%	75%	0.0800

IV intravenous, PACU post-anesthesia care unit

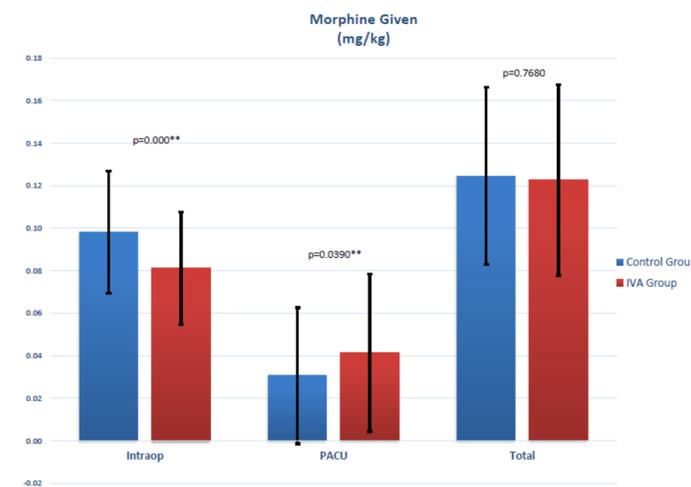


Table 2 (Secondary outcome measures)

	Control Group (n=91)	IV Acetaminophen Group (n=91)	P value
% Receiving rescue opioid doses	62%	75%	0.0800
Max PACU FLACC pain score	4.51±3.14 (3.85–5.15)	4.93±3.15 (4.27–5.59)	0.3610
Time to discharge (min)	109±40 (101–118)	117±43 (108–126)	0.2150

RESULTS

Case control matching yielded 91 patients in each group and there were no differences in age, weight, gender and incidence of OSA between groups

IV Acetaminophen group received significantly less intraoperative morphine compared with control group

However, IV Acetaminophen group received more morphine in the PACU

Neither the total morphine nor the total morphine per kilogram received in the operating room and the PACU combined was statistically different

The percentage of patients receiving rescue doses of opioid in the PACU and pain scores was not statistically significant between the two groups

DISCUSSION

Administration of intraoperative intravenous acetaminophen doesn't decrease the amount of morphine administered at the time of discharge

Intraoperative Acetaminophen doesn't decrease the pain scores in PACU nor the length of stay

We speculate that timing of intravenous acetaminophen in the PACU for break through pain may be a better practice than intraoperative administration

Administration of IV Acetaminophen in the PACU may limit the amount of opioid administered in the PACU

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