Effect of intravenous acetaminophen on post-anesthesia care unit length of stay, opioid consumption, pain, and analgesics drug costs after ambulatory surgery

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Background

- Intravenous acetaminophen (APAP IV) has been used as a multimodal approach to optimize pain management, especially in postoperative settings.[1]
- In contrast to opioids, APAP IV is not associated with sedation, respiratory depression, ileus and constipation that can result in longer hospital length of stay (LOS).[2,3]
- In January 2012, APAP IV was added to our hospital's formulary and its use was restricted to the operating room and post-anesthesia care unit (PACU) settings
- In May 2014, the cost of APAP IV significantly increased and had a significant impact on the hospital's budget
- The use of APAP IV at our institution was reevaluated and the P&T Committee approved the removal of APAP IV from the inpatient formulary based on the availability of less expensive dosage forms and non-opiate alternatives.

Purpose

- To determine if APAP IV had a significant effect on PACU length of stay, pain scores, opiate consumption, pain medication costs

Methods

- This is a retrospective cohort study of adult patients (> 18 years of age) who received outpatient eye, ear, nose, or throat (EENT) procedures
- Patients were categorized as those who received APAP IV and those who did not receive APAP IV following its removal from the formulary

Methods

- Data was collected during the following time periods:
  January 1st, 2014 thru June 30th, 2014 (APAP IV)
  August 1st, 2014 thru January 30th, 2015 (No APAP IV)
- Descriptive and demographic categorical variables compared using Fisher's exact test and continuous variables analyzed using Student's *t* or Mann-Whitney *U* test with *A*lpha 0.05 used for all analyses

Results

Table 1: Patient Characteristics

Variable	APAP IV n=87	NO APAP IV n=87	P-Value
Age (years)(mean ± SD)	(46.4 ± 2.09)	(50.8 ± 2.01)	0.133
Weight (kg)(mean ± SD)	(79.3 ± 2.05)	(82.9 ± 1.9)	0.197
Sex (n, %) Male Female	 (44, 50.57) (43, 49.43)	 (50, 57.47) (37, 42.53)	0.361

Table 2: Pain Scores and Opiate Consumption

Variable	APAP IV n=87	NO APAP IV n=87	P-Value
Pain Group (n, %) 0 (***mild/no pain***) 1 (***moderate/sever pain***)	 (38, 73.07) (14, 26.92)	 (27, 39.71) (41, 60.29)	**<0.001**
Total opioid use in mg IV morphine equivalent (median, IQR)	9.2 (5 - 12.7)	7.5 (5 - 11.7)	0.081

Results

Figure 1: Cost of Analgesics

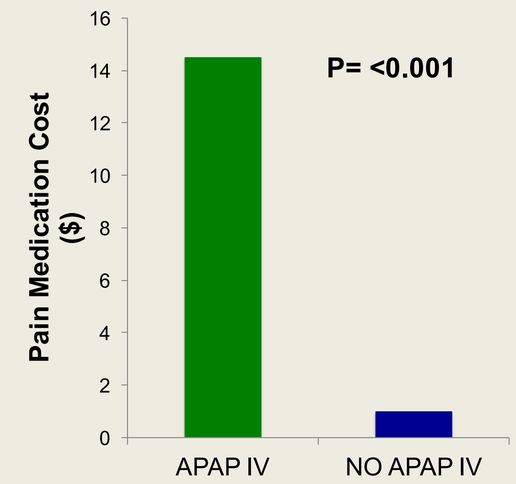
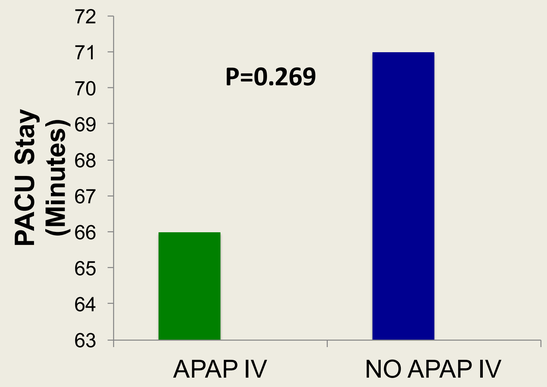


Figure 2: Length of PACU Stay



Results

- Removal of APAP from the formulary resulted in decreased post-operative pain control
- There was no significant difference in opioid consumption
- PACU LOS did not change significantly
- Analgesic costs were significantly greater with APAP use

Limitations

- Open-label design
- Retrospective design
- Single institution
- Poor/lack of documentation of opiate induced side effects
- Types of surgeries not evenly distributed between groups

Conclusions

- APAP use after EENT procedures may improve post-operative pain control. However, this occurs at an increased institutional analgesic cost
- The improved pain control may not change analgesic consumption or PACU LOS

References

1. Crews JC. Multimodal pain management strategies for office-based and ambulatory procedures. Jama 2002;288:629-32.
2. Wier LW, Steiner CA, Owens PL. Surgeries in Hospital-Owned Outpatient Facilities. Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality. Statistical Brief #188. http://www.hcup-us.ahrq.gov/reports/statbriefs/sb188-Surgeries-Hospital-Outpatient-Facilities-2012.pdf (Accessed October 2, 2015).
3. American Society of Anesthesiologists Task Force on Acute Pain M. Practice guidelines for acute pain management in the perioperative setting: an updated report by the American Society of Anesthesiologists