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Availability of Pain Medications for NPO Patients

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Introduction/Background

In recent years, the opioid epidemic has been a key catalyst in changing the medical standards for treating both acute and chronic pain. Instead of relying heavily on narcotics for pain management, practitioners are now encouraged to adapt a non-pharmacologic, non-opioid approach to analgesia.¹ While many guidelines have been set to standardize outpatient pain management, the rules surrounding inpatient analgesia are limited or lacking.²

Patients that receive opioids in the hospital setting have an increased risk of chronic opioid use after discharge.³ Avoiding the use of opioids in the hospital setting could potentially reduce the risk of chronic opioid use after discharge. However, there are limited alternative analgesic options to opioid therapy. The list of palliative non-narcotic medications is even shorter for patients that cannot take drugs by mouth, making inpatient analgesic drug selection a tough task for most practitioners. Theoretically, if more alternative pain medications are available, practitioners would be less likely to use narcotics for inpatient pain control. Our study was designed to determine whether physicians used less intravenous opioids when alternative treatments for pain were available.

Methods

We conducted a retrospective analysis of inpatient analgesic prescribing habits from two separate hospitals in the Pinellas County area. The hospitals are within a ten mile radius of one another and service the same patient population. This population group does have a significant opioid abuse problem, with a 50% increase in recent opioid related deaths reported by the county.⁴

The data was obtained from the HCA enterprise data warehouse (EDW). The EDW pulls data from 180 HCA hospitals and stores them as de-identified data. This permits an electronic data abstraction from EDW across the enterprise.

The study reviewed EDW for two HCA hospitals in West Florida Division, Largo Medical Center and Saint Petersburg General Hospital between July 1, 2014 and July, 1, 2018.

Patients within the age range of 18-80 were included in this study if their order set included "NPO" (nil per os) Patients were included in the study if they were given any analgesic medication through an IV or patch. Patients that were ventilated and "NPO" were excluded. Patients outside of the age range and date range were excluded. Patients that did not receive IV pain medication were also excluded. In total, 43, 617 patients were included in this study.

The pain medications being analyzed included intravenous NSAIDs, intravenous opioids, lidocaine patches, and intravenous acetaminophen. One hospital formulary carried intravenous acetaminophen, while the second hospital did not. All other medications analyzed were equal in formulary distribution between the two facilities.

Descriptive statistics for continuous variables age, creatinine, lidocaine, IV ketorolac, and IV acetaminophen are provided as mean with standard deviation. A logistic regression analysis was performed to investigate the relationship between pain prescription patterns and lidocaine, IV ketorolac, and IV acetaminophen. Variables age and creatinine were included as covariates in the model. Adjusted odds ratios were calculated for the variables. A *p*-value of 0.05 was considered statistically significant.

Results

Table 1 provides the descriptive statistics for age, creatinine, lidocaine, ketorolac and IV acetaminophen are provided as mean with standard deviation.

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Age	43617	18	80	2380743	54.65	15.949
Creatinine	43617	.17	27.13	.46	1.06	.87
Lidocaine	43617			355	.01	.05
IV Ketorolac	43617			3817	.08	.28
IV Acetaminophen	43617			190	.001	.05

Patients that received intravenous acetaminophen were 1.975, 95% CI [1.397, 2.791; *p* <0.05] more likely to require opioids during inpatient stay. Patients that received intravenous ketorolac were 0.727, 95% CI [0.679, 0.779; *p* <0.05] less likely to require opioids during inpatient stay. Patients that were given a lidocaine patch were 0.330, 95% CI [0.260, 0.419; *p* <0.05] less likely to require opioids during inpatient stay.

Conclusion

Intravenous acetaminophen does not seem to lessen opioid use in the inpatient hospital setting. Additional studies may be warranted to determine whether diagnosis or pain level significantly affect IV acetaminophen analgesia

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