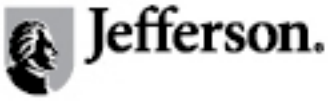

5-31-2017

Utilization of a multimodal preoperative pain regimen prior to gynecologic oncology exploratory laparotomies

Lauren C. Hand, MD
Thomas Jefferson University, lauren.hand@jefferson.edu

Alison Vogell, MD
Lahey Hospital and Medical Center

Talia Maas, MD
Thomas Jefferson University, talia.maas@jefferson.edu

Kristina Masi, MD
Thomas Jefferson University Hospital, kristina.masi@jefferson.edu

Rebecca J. Mercier MD MPH
Thomas Jefferson University, Rebecca.Mercier@jefferson.edu

See next page for additional authors

Authors
Lauren C. Hand, MD; Alison Vogell, MD; Talia Maas, MD; Kristina Masi, MD; Rebecca J. Mercier MD MPH; Norman G. Rosenblum, MD, PhD; and Christine H. Kim, MD

Utilization of a multimodal preoperative pain regimen prior to gynecologic oncology exploratory laparotomies.

Lauren C Hand MD[1], Alison Vogell MD[2], Talia Maas MD [1], Kristina Masi MD [1], Rebecca Mercier MD [1], Norman G. Rosenblum MD, PhD[3], Christine H. Kim MD[3]

1. Department of Obstetrics and Gynecology, Thomas Jefferson University Hospital
2. Division of General Gynecology, Lahey Hospital & Medical Center
3. Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, Thomas Jefferson University Hospital

Background

Postoperative analgesia is an important component of patient care and surgical outcomes. It is thought that inadequate pain control leads to decreased ambulation, increased morbidity, increased use of opioids, and increased length of hospital stay. A multimodal approach to pain control has been shown in other surgical fields to reduce the use of post-operative opioid use.

Objective

The aim of this study was to evaluate the use of a combination of non-opioid preoperative pain medications including Tylenol, Lyrica, and Celecoxib (TLC) in patients undergoing gynecologic oncologic exploratory laparotomies. We evaluated postoperative narcotic use in morphine equivalents (ME), as well as pain scores, anti-emetic use, and length of stay.

Methods

A retrospective cohort study was performed of all gynecologic oncologic patients who underwent exploratory laparotomies from February 2011 to April 2013 by one surgeon at a tertiary care center who either received TLC or did not. The primary outcome was post-operative narcotic use in ME during the first 24 hours after surgery. Secondary outcomes included postoperative pain scores, total ME during the hospital stay, and length of stay. For the purpose of standardizing, all narcotics were converted to either PO or IV ME. Data was analyzed using STATA Version 12 with a combination of Kruskal-Wallis test, t-test, and chi square.

Results

- 84 patients received TLC and 64 patients did not receive TLC

- Demographics were similar between the two groups including age, race, BMI, comorbidities, smoking, number of prior laparotomies, and type of cancer

Table 1: Non-opioid postoperative pain control

Variable	TLC (n= 84)	NO TLC (n=64)	P
	n (%)	n (%)	
Postop IV Tylenol			**<0.01**
Yes	80 (96)	3 (4)	
Postop IV Motrin			0.07
Yes	4 (100)	0 (0)	
Postop PO Lyrica			**0**
Yes	49 (96)	2 (4)	
Postop IV Toradol			**0**
Yes	1 (2)	43 (97)	

Table 2: Analysis of Morphine Equivalents and Pain Scores

	TLC Median	No TLC Median	P
Total MEQ PO + IV 0-72h	90.6	123.8	**<0.01**
Total MEQ IV 0-72h	71.7	106.8	**<0.01**
Total MEQ PO 0-72h	16	16	0.58
Total MEQ PO+IV 0-24h	40.2	66	**<0.01**
Total MEQ IV 0-24h	39.5	66	**<0.01**
Total MEQ PO 0-24h	0	0	0.21
Total MEQ PO+IV 24-48h	26.1	28.1	0.94
Total MEQ IV 24-48h	22.8	26.8	0.94
Total MEQ PO 24-48h	0	0	0.30
Total MEQ PO+IV 48-72h	14.7	16	0.36
Total MEQ IV 48-72h	4.0	4.0	0.78
Total MEQ PO 48-72h	0	0	0.55
Mean pain 0-24h	4.7	3.5	**0.01**
Mean pain 24-48h	3.5	3.7	0.76
Mean pain 48-72h	3.3	3.8	0.30
Mean max pain 0-24h	6	7	**<0.01**
Mean max pain 24-48h	5	5	0.32
Mean max pain 48-72h	5	5	0.90
Mean min pain 0-24h	0	2	**<0. 01**
Mean min pain 24-48h	2	2	0.73
Mean min pain 48-72h	2	2	0.14

Table 3: Adjusted Means ANOVA Analysis

Outcome of Interest	Adjusted Means Mean (95% CI of adjusted mean)		P
	With TLC	NO TLC	
Total MEQ all 0-72h	122.6 (58.6, 186.6)	214.3 (133.5, 295.1))	**0.05**
Total MEQ iv 0-72h	94.7 (40.1-149.4)	169.4 (100.4,238.5)	**0.01**
MEQ all 0-24h	64.6 (15.0,114.3)	111.9 (49.2,174.6)	**0.04**
MEQ iv 0-24h	64.3 (14.7, 113.9)	111.9 (49.2, 174.6)	**0.04**
Mean pain 0-24h	3.4 (2.6,4.3)	4.5 (3.4,5.6)	**0.01**
Mean min pain 0-24h	1.4 (0.61, 2.2)	1.9 (0.91, 2.9)	**0.03**
Mean max pain 0-24h	5.6 (4.6, 6.6)	7.2 (5.9, 8.5)	**0.02**

Significance and/or lessons learned:

Using a multi-modal approach to pain control pre-operatively can help reduce patient's IV narcotic usage in the first 24 hours after surgery. The mean pain score in the 24 hours after surgery was significantly less in the group that received TLC. Additionally, both the maximum and minimum pain scores in the first 24 hours after surgery were also significantly less in the group that received TLC. The total combined PO and IV MEs, as well as the total IV ME were also reduced over the entire postoperative period in the group that received TLC. Using ANOVA analysis, statistical significance was retained, though minimal pain scores had a weak association.

Future Directions

-Enact TLC pre-operative regimen in routine gynecologic cases

-Evaluate the use of TLC in minimally invasive techniques

-Evaluate the use on on-q pain systems compared to exparel intraoperative