Standardization of Prescriptions to Decrease Excess Opioids after Appendectomy and Cholecystectomy

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Background

The use of opioids to manage pain has increased substantially, with some serious unintended consequences:

Average number of opioid poisonings resulting in hospitalizations each day in Canada **16**

53 % Increase in the rate of hospitalizations for opioid poisoning over the past 10 years in Canada

15 years → **24 years**

Age groups with the fastest growing rate of hospitalizations due to opioid poisoning over the past 10 years in Canada

— Canadian Institute for Health Information, 2017

Moreover, the risk of opioids extends beyond the individual who received the original prescription as opioids may be misused or diverted to others.

1 in 10 high school-aged teens in Ontario have tried an opioid medication recreationally. 60% of the time those opioids were obtained from home.

— Centre for Addiction and Mental Health, 2015

No clear guidelines or evidence existed on opioid prescriptions after surgery. Several American studies have reported wide variation and excess unused opioids in general surgery patients and that excess opioids are rarely disposed of properly.[1,2,3]

Aim

We sought to characterize post-discharge opioid prescriptions in a cohort of patients undergoing laparoscopic appendectomy (LA) or laparoscopic cholecystectomy (LC) in a Canadian centre, at our university-affiliated community teaching hospital in Toronto.

Our primary goal was to determine the amount of opioid used by surgical patients following discharge and compare this to the amount prescribed. Secondary outcomes included the adequacy of pain control and disposal methods for leftover opioids.

This data would then be used to create a standardized evidenced-based prescription and patient education pamphlet that could be implemented at our centre following laparoscopic appendectomy or cholecystectomy surgeries. Patients would again be recruited to assess the effectiveness of the new prescription and education initiative.

Actions Taken and Results

Discharge prescriptions were provided to patients by the general surgery attending physicians and general surgery residents who were instructed to continue prescribing medications as they normally would.

Patients were called after discharge from hospital on post-operative day seven and asked a standardized questionnaire by one of the investigators. Questions included amount of prescribed opioids used, pain control, as well as how pills were stored and/or disposed. Patients were recruited from April to June of 2017

The data obtained was then analyzed.

Patient Demographics

Characteristic	Laparoscopic Appendectomy (n=33)	Laparoscopic Cholecystectomy (n=94)
Age, median (IQR)	45 (33-54)	51 (38-62)
Female, n (%)	14 (42.4)	66 (70.2)
Emergency procedure, n (%)	30 (90.9)	18 (19.1)
Conversion to open, n (%)	0	0
History of Addiction, n (%)	1 (3.0)	1 (1.1)
History of Psychiatric Illness, n (%)	3 (9.1)	8 (8.5)
History of Chronic Pain, n (%)	1 (3.0)	9 (9.6)
Prior Long-term Opioid Use, n (%)	1 (3.0)	3 (3.2)

Prescriptions Dispensed

	Laparoscopic Appendectomy (n=33)	Laparoscopic Cholecystectomy (n=94)
Formulation n(%)		
Acetaminophen with codeine	8 (24)	30 (32)
Acetaminophen with oxycodone	5 (15)	18 (19)
Oxycodone	18 (55)	30 (32)
Morphine	1 (3)	10 (11)
Hydromorphone	0 (0)	5 (5)
Other	1 (3)	1 (1)
Number of pills n(%)		
1 to 10	3 (9)	22 (23)
11 to 20	20 (61)	34 (36)
21 to 30	10 (30)	38 (40)
31 to 40	0 (0)	0 (0)

- Total number of pills prescribed: 2,672
- Total number consumed by patients: 458
- Percentage consumed: 17%
- Percentage of unused opioids: 83%

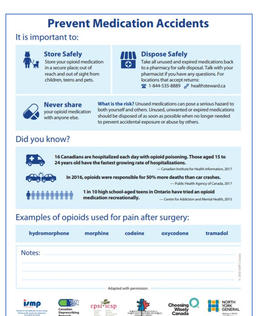
A total of 2,214 unused pills prescribed in three months!!!!

This data was then used to create a standardized prescription

1. **acetaminophen (Tylenol® extra strength) 500 mg PO Q6h x 3 days**
2. **ibuprofen (Advil® regular strength) 200 mg PO Q6H x 3 days**
3. **Choice of Opioids: (MD selects one)**
   - **morphine 5 mg q4h PO PRN for severe pain,**
     Mitte: 20 tablets; Dispense 10 tabs every 3 days
     OR
   - **HYDROmorphone 1 mg PO q4h PRN or severe pain,**
     Mitte: 20 tablets; Dispense 10 tabs every 3 days

Prescription expires after 1 month

A Patient information sheet was developed and used to counsel patients on opioid use and disposal, in partnership with the Institute for Safe Medication Practices.



Patients were then re-recruited (November 2017-January 2018), after implementation of the standardized prescription. Questions included the amount of prescribed opioids used, pain control, as well as whether or not they received education about opioids and storage and/or disposal of opioids

Characteristic	Prior to Introduction of Standardized Prescription	After Introduction of Standardized Prescription
Number of Patients Recruited	129 (33 LA and 94 LC)	109 (11 LA and 98 LC)
Percentage of Pills Consumed	17%	20%
Average number of Pills Consumed	3.6 pills	2 pills
Percentage of Patients who Received Education on Opioids	8.5%	44%
Average Pain Scores (out of 10)	3.87	3.85
Average Satisfaction Scores (out of 5)	4.4	4.4

We prescribed 1,182 tablets in 3 months with our standardized prescription (2,672 prescribed previously)

56% less than previous!!!

Conclusion

With this intervention, in a 3-month period, we avoided prescribing 1090 opioid pills. Given that our site performs over 800 laparoscopic cholecystectomies and over 300 laparoscopic appendectomies per year, this would amount to 11,000 less opioids prescribed at one institution. The opportunity for other hospitals to adopt this prescription would mean several thousands less unused opioid pills would be prescribed which would no longer be available for potential abuse or misuse.

References

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3. Bartels K, Mayes LM, Dingmann C, Bullard KJ, Hopfer CJ, Binswanger IA. Opioid Use and Storage Patterns by Patients after Hospital Discharge following Surgery. PloS one. 2016;11(1):e0147972.