Combating the Opioid Epidemic After Surgery

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In 2011, the Centers for Disease Control and Prevention declared an opioid epidemic in the United States. Deaths related to opioid overdose have quadrupled since 1999, exceeding 18 000 in 2014.¹ Opioids now outnumber motor vehicle accidents as the number one cause of accidental death in the United States. In 2016, it was announced that more Americans use opioids than tobacco.

This epidemic has been fueled by a dramatic rise in opioid prescriptions. Since the concept of pain as the “fifth vital sign” was introduced by the late 1990s, the sales of opioid medication have grown by 402%. Although the United States comprises only 4.6% of the world’s population, it consumes 80% of the global opioid supply. Put another way, enough opioid prescriptions are written in the United States to supply every adult American with 5 milligrams of hydrocodone every 6 hours for the next 45 days.²

In the state of Michigan, it is estimated that nearly 40% of the opioids in the community are prescribed by surgeons following an operation. However, there are virtually no guidelines

in place to help surgeons choose an appropriate amount for a given procedure or patient. Analysis of prescribing patterns is central to addressing the excess of opioids being introduced into the community following surgery. To date, only a handful of studies have looked at postoperative prescription patterns. Even less is known about actual patient use following surgery.

Opioid Prescribing and Use After Surgery

Following outpatient upper extremity surgery, Rodgers et al described a cohort of 250 patients in which the average prescription size was 30 pills (mostly oxycodone, hydrocodone, and propoxyphene); however, mean consumption was 10 pills.³ Subjects reported having an average of 19 pills left over. Another survey of 275 patients who underwent various urologic procedures found that 42% of prescribed opioids went unused, and 67% of patients had leftover medication.⁴ Of patients undergoing cesarean section, 53% of respondents used 5 pills or fewer following surgery.⁵ Of patients undergoing a single

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skin excision, 86% reported having leftover prescription pain medication.⁶

Earlier this year, Hill et al found that there was wide variation in the amount of pills being prescribed to patients following some common surgical procedures, including partial mastectomy, laparoscopic cholecystectomy, and inguinal hernia repair. Overall, only 28% of the prescribed pills were taken by patients, resulting in 2527 leftover pills among 127 patients.⁷

At our own institution, we found similar variation and excess after elective, outpatient laparoscopic cholecystectomy. While median prescription size was 250 oral morphine equivalents, which is equivalent to 50 tablets of acetaminophen/hydrocodone 5/325 mg, half of patients surveyed reported using 5 pills or fewer. A third of patients used none of the opioid prescription following surgery. More than 75% of patients did not dispose of leftover medication, with most storing it in an unlocked medicine cabinet or cupboard.

Opioid prescriptions for postsurgical pain are arbitrary, excessive, and unsafe. The excess of leftover pills following surgery is what drives increasing misuse and abuse. More than 70% of patients store their medication in an unlocked location,⁷ and 92% of patients report receiving no instructions for disposal of excess medication,⁶ which can lead to diversion for nonmedical use. The 2008 National Survey on Drug Use and Health revealed that an estimated 4.7 million Americans use prescription pain relievers nonmedically; 56% obtained the medication from a friend or relative.⁸

What Can We Do to Make Patients Safer?

The data clearly indicate that there is a dire need to reduce the number of excess pills being introduced into the community following surgery. A variety of solutions have been proposed, some with promising results.

At Massachusetts General Hospital, there is currently a trial exploring the effect of shared decision making on opioid prescription size following

cesarean section.⁹ As part of the trial, women will be allowed to choose the amount of oxycodone they wish to be prescribed at discharge. The University of Maine recently led a statewide leftover medication mail-back program, which successfully disposed of hundreds of pounds of leftover medication.¹⁰

At the University of Michigan, we are in the process of developing postoperative prescription guidelines based on actual patient use data for a variety of procedures. This will allow us to better match the amount of medication prescribed with the amount used, thus reducing leftover medication.

Given the current magnitude of the ongoing opioid epidemic, important changes should be made in regard to postoperative pain control:

1. Prescription sizes must be reduced. Although each patient's subjective pain experience following surgery is unique, the data outlined above clearly illustrate that, overall, the majority of medication prescribed for postsurgical pain goes unused. Reducing prescription sizes to better match actual patient need will prevent excess medication from entering the community in the first place. At our own institution, we recently introduced the guideline of prescribing 15 oxycodone 5 mg or 15 hydrocodone/acetaminophen 5/325 mg following elective laparoscopic cholecystectomy.
2. Perioperative patient education must also be improved. Addressing postoperative pain expectations must be a part of every preoperative evaluation. It should also become common practice to inform patients of the dangers of leftover prescription pain medication. Patients should be instructed as to where they can dispose of leftover pills. In the state of Michigan, more than 400 locations accept leftover opioids. One practical solution is an online map that

allows patients to search for disposal sites near their homes. At the University of Michigan, we have been piloting such a tool at umhealth.me/takebackmap.

3. Finally, provider education must also be enhanced. Only 30% of US and Canadian medical schools teach about prescribing opioid pain medications.¹¹ In general, residents receive no formal education regarding postoperative prescription of opioids, which may be the cause of the wide amount of variation observed within institutions and around the country.

Given the large proportion of opioids that enter the community after surgery, it is clear that surgeons and surgical teams will play a central role in confronting the current opioid epidemic. By taking steps to reduce prescription sizes, encourage disposal of leftover medication, and counsel patients on what to expect after surgery, great strides can be made in protecting the safety of our patients and our community.

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