Analgesic prescribing habits and patterns of Canadian chief urology residents: A national survey

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Cite as: *Can Urol Assoc J* 2020;14(6):199-203. http://dx.doi.org/10.5489/cuaj.6221

Published online January 20, 2020

Full survey available as Appendix at *cuaj.ca*

Abstract

Introduction: Prior studies have identified significant knowledge gaps in acute and chronic pain management among graduating urology residents as of five years ago. Since then, there has been increasing awareness of the impact of excessive opioid prescribing on long-term narcotic use and development of adverse narcotic-related events. However, it is unclear whether the attitudes and experience of graduating urology residents have changed. We set out to evaluate the attitudes and experience of graduating urology residents in prescribing opioid/non-opioid analgesia for acute (AP), chronic non-cancer (CnC), and chronic cancer (CC) pain.

Methods: Graduating urology residents were surveyed at a review course in 2018. The survey consisted of open-ended and close-ended five-point Likert scale questions. Descriptive statistics, Mann-Whitney U-test, and Student's t-test were performed.

Results: A total of 32 postgraduate year-5 (PGY5) urology residents completed our survey (92% response rate). The vast majority agreed that formal training in managing AP/CnC/CC is valuable (91/78/81%). Most find their training in CnC/CC management to be inadequate and are unaware of any opioid prescribing guidelines; 66% never counsel patients on how to dispose of excess opioids. In general, 88% are comfortable prescribing opioids, whereas most are very uncomfortable prescribing cannabis or antidepressants (100% and 78%, respectively). Residents reported the acute pain service as the highest-rated resource for information, and dedicated textbooks the least.

Conclusions: This survey demonstrated that experience in pain management remains variable among urology residents. Knowledge gaps remain, particularly in the management of CC/CnC pain.

Introduction

The "opioid crisis" in Canada, primarily a result of opioid over-prescribing, continues to exert its toll on public health.[1-4] There have been over 8000 opioid-related deaths between January 2016 and September 2018, the most of which (>90%) were accidental.[3,5] At the center of this crisis is the excessive prescribing of opioids; a 140% increase in defined daily doses of opioids dispensed was recorded in the two-year period from 2013–15 compared to 2003–05.[3,6,7] Moreover, Canadians are not only prescribed more opioids, they're also increasingly prescribed stronger opioids; 57.3% of opioids prescribed in 2016 are strong opioids (fentanyl, hydromorphone, morphine, and oxycodone), compared to 52.2% in 2012.[8] In addition to pain and palliative care specialists, surgeons are among the highest prescribers of opioids; in the U.S., surgeons prescribe 10% of all opioids dispensed.[9,10] Various U.S. studies have shown that as high as 70% of postoperatively prescribed opioids are not used, making them available for potential misuse or abuse.[10-19] Moreover, patients rarely dispose of unused opioids.[20] In addition to postoperative pain, surgeons prescribe opioids for the management of chronic cancer and non-cancer pain. Urologists, in particular, manage chronic non-cancer pains, such as chronic prostatitis/chronic pelvic syndrome, interstitial cystitis, chronic epididymitis, and orchiodynia, in addition to chronic cancer-related pain, acute renal colic pain, and pain occurring in an acute surgical setting.[21-24]

Similar to other surgical specialties, most opioid prescriptions written in academic centers are written by urologists in training, highlighting the importance of an in-depth understanding of pain management options.[23-26] However, studies involving medical oncologists and surgeons demonstrated clear knowledge gaps.[24,27,28] A recent survey of U.S. surgical program directors found that only 20% of training programs have mandatory opioid prescribing education as part of their curriculum.[26,29] Moreover, in a 2013 survey of Canadian urol-

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ogy chief residents, Pace et al found a significant difference of training experience in chronic and acute pain management, and poor apparent knowledge of opioid prescribing.[24]

Since 2013, there has been increasing awareness of the impact of excessive opioid prescribing on long-term narcotic use and development of adverse narcotic-related events. However, it is unclear whether the attitudes and experience of graduating urology residents have changed. With the increasing number of opioid-related deaths, and the shift towards a competency-based graduate medical education, we hypothesize that insight into these habits and patterns would offer a deeper understanding of the quality and type of education Canadian urology residents are provided, and prove highly beneficial in facilitating the development of educational curricula.[30]

For these reasons, we set out to evaluate the attitudes and experience of graduating urology residents in prescribing opioid/non-opioid analgesia for acute (AP), chronic non-cancer (CnC) and chronic cancer (CC) pain.

Methods

Ethics approval was obtained from Queen's University institutional review board. Thirty-five postgraduate year-5 (PGY-5) urology residents from training programs across Canada participating in the annual Queen's Urology Exam Skills Test (QUEST) course, were invited to participate in this voluntary study. Primary and secondary outcomes of the survey were communicated to all invitees. Invitees were informed that participation and responses would not impact their academic standing or their performance in the review course.

The study employed a confidential and anonymous paper survey comprised of open- and close-ended questions (Appendix; available at *cuaj.ca*). Residents were asked about their confidence, experience, and formal training in the management of acute and chronic pain as measured by a five-point Likert scale. In addition, they were asked about resources most often used, and the complimentary services most often engaged. Moreover, respondents were presented with three hypothetical cases (AP, CC, and CnC) (Appendix; available at *cuaj.ca*) and asked to fill an appropriate prescription.

Descriptive statistics was used to describe the data. Average Likert scores and standard deviations were calculated for all close-ended questions. In addition, an agreeableness score (percentage of participants selecting 4 or 5 on a five-point Likert scale) were calculated. Written opioid prescriptions were analyzed and normalized to morphine equivalents per day and compared on such basis. Moreover, statistical analysis involved Mann-Whitney U test, student's t-test, Pearson's chi-squared test, or Fisher's exact test, as applicable.

Results

Thirty-five PGY-5 urology residents participating in QUEST were invited to complete our survey; 32 responses were collected, resulting in a response rate of 92%. Fig. 1 summarizes the reported confidence, training, and experience respondents have in managing different types of pain. Although only 63% report receiving formal training in the management of AP (mean Likert score 3.34±1.05 standard deviation [SD]), most of the respondents (81%; 3.97±0.85) agree that their training in the managing of AP is adequate. On the other hand, only 19% (2.50±0.83; p<0.0001) and 22% (2.53±0.93; p<0.0001) of the residents thought their training in managing CnC and CC, respectively, was adequate. This is in line with only 31% (2.75±1.0; 2.69±0.95) reporting receiving formal training in the management of CnC and CC, respectively. Interestingly, most respondents agree that formal training in the management of AP, CnC, and CC is very valuable.

In a similar fashion to the 2013 study by Pace et al, residents were asked to rank the resources they most often use in pain management (Fig. 2).[24] Similar to previous studies, our results indicate that the acute pain service and fellow trainees rank among the highest of valued resources. On the other hand, guidelines and textbooks ranked among the lowest. In fact, only 19% are aware of any guidelines for the management of AP, and even fewer are aware of any guidelines for the management of CC (9%) or CnC (6%).

When asked about confidence in prescribing different drug modalities (Fig. 3), the majority report comfort in prescribing acetaminophen, non-steroidal anti-inflammatory drugs (NSAIDs), and opioids. On the contrary, only 38% (3.16±1.00) agree that they're comfortable prescribing gabapentinoids. Even fewer (3%; 2.16±0.83) feel confident prescribing muscle relaxants and none of the respondents feel comfortable prescribing antidepressants or medicinal marijuana (1.75±0.79 and 1.28±0.45, respectively). Forty-five percent (3.16±1.25) indicated regularly engaging complimentary services for pain control, with palliative care and acute pain service being the two most frequently consulted services (63% and 53%, respectively).

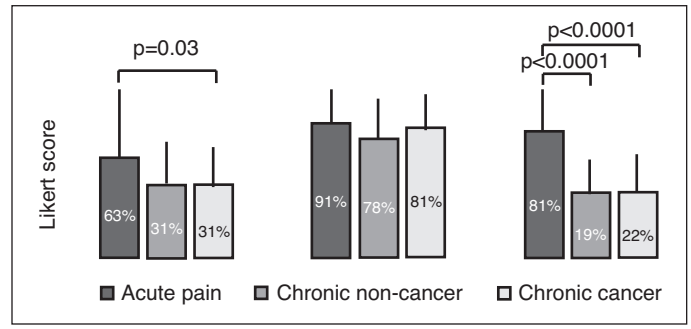

Fig. 1. Reported overall comfort and experience in managing acute pain, chronic non-cancer pain, and chronic cancer.

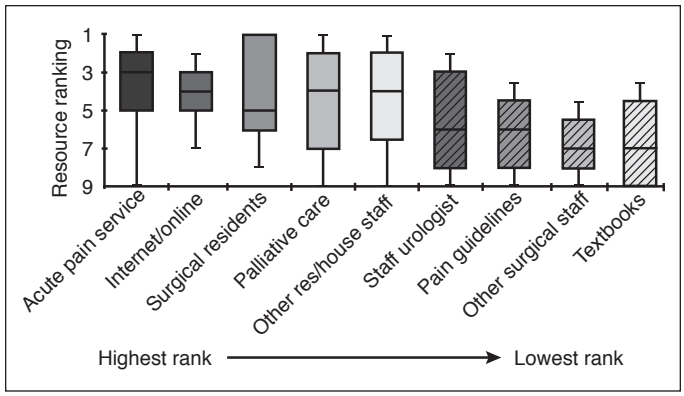

Fig. 2. Educational resources used. Box and whisker plot (mean, 95% confidence limit) of ranking scores.

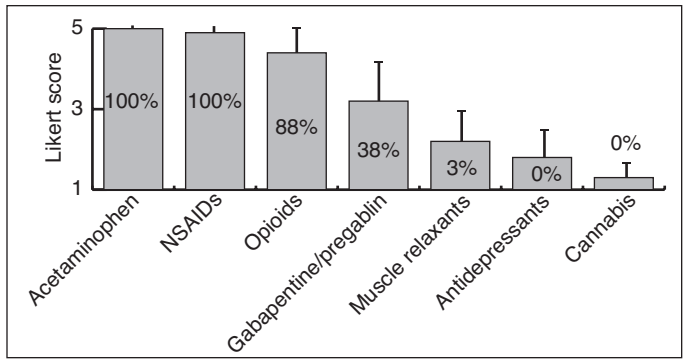

Fig. 3. Reported comfort level prescribing different drug modalities. NSAID: non-steroidal anti-inflammatory drug.

The residents were presented with three hypothetical cases and asked to write appropriate prescriptions and list the most pertinent issues they would counsel on (Fig. 4). Scripts for the AP case had a median of 2.5 drugs, with 72% containing an NSAID, followed by α-blockers (63%), and opioids (56%). The three items most often counselled for on an AP script were constipation, dizziness, and gastrointestinal (GI) bleeds (69%, 34%, and 34%, respectively). Greater variability was seen in the CnC scripts, where the most common drug class prescribed was NSAIDs (38% of prescriptions). Tricyclic antidepressants (TCA), acetaminophen, and opioids appeared in similar frequencies (29%, 25%, and 21%, respectively). Constipation and GI bleeds were again the items most counseled for (29% each), followed by drowsiness (17%). CnC prescriptions had a median of one drug/script. CC scripts had the highest frequency of opioid prescriptions, with 91% of respondents prescribing some form of opioid, followed by acetaminophen and a laxative (31% and 28%, respectively). Most (88%) respondents listed constipation as an item for counselling; interestingly, addiction was only mentioned by 25% of respondents, following drowsiness (28%). When asked explicitly, 85% of respondents said they never or seldom counsel for proper opioid disposal. Moreover, in order to facilitate comparison, all opioid prescriptions were normalized to morphine equivalents per day (Fig. 5). Not only were opioids prescribed more often for CC, the amount of opioid prescribed (50±29 mg/day) was significantly greater than that of AP scripts (35±26 mg/day; $p=0.032$) and CnC scripts (8±18 mg/day; $p<0.00001$).

Discussion

In the U.S. alone, more than 130 people die every day from overdosing on opioids.[31] Liberal prescribing of opioids by well-meaning physicians has had a significant role in this crisis through misuse and diversion.[32] More recently, there has been increasing awareness of the harms of medical prescribing of opioids, which has brought the issue of pain management to the forefront for all health practitioners, including urologists. A 2013 survey of Canadian chief urology residents identified a knowledge gap in managing different types of pain, and recommended an increased focus on pain management during residency education.[24] Our results show that despite increasing awareness of this issue, little has changed over five years in the attitudes and experience of Canadian urology residents regarding pain management.

Although most residents agreed that formal training in pain management was important, it represents a disproportionately small percentage of the curriculum in urological postgraduate education according to this survey. When probed about educational resources used for pain management, the most commonly cited resource remained the acute pain service. The involvement of acute pain services may represent a double-edged sword, as surgical residents can learn passively from suggestions of the consulting service but may have their active involvement in acute pain management diminish. Encouragingly, since 2013, residents reported a greater dependence on online resources, which makes for more active, albeit informal, learning. Interestingly, although residents reported comfort in prescribing a variety of analgesic agents, many indicated a lack of confidence particularly in prescribing gabapentinoids and TCAs, which have become common adjuncts to the traditional opioid and NSAID pain regimes in the inpatient and outpatient setting.

Unsurprisingly, residents reported less comfort managing CC and CnC pain. Although CC and CnC pain are less commonly dealt with by urologists, there remain several conditions in which urologists may be called upon to prescribe pain medications in these settings. Our index patient for CC pain in our survey was a patient with metastatic prostate cancer. The urologist is often the primary specialist involved with caring for these patients. This may lead to urologists taking a more central role in pain management in this setting. Our index patient with CnC pain was a patient with interstitial cystitis bladder pain syndrome. This represents another condition that is commonly managed by the urologist, in which experience with CnC pain management may be useful.

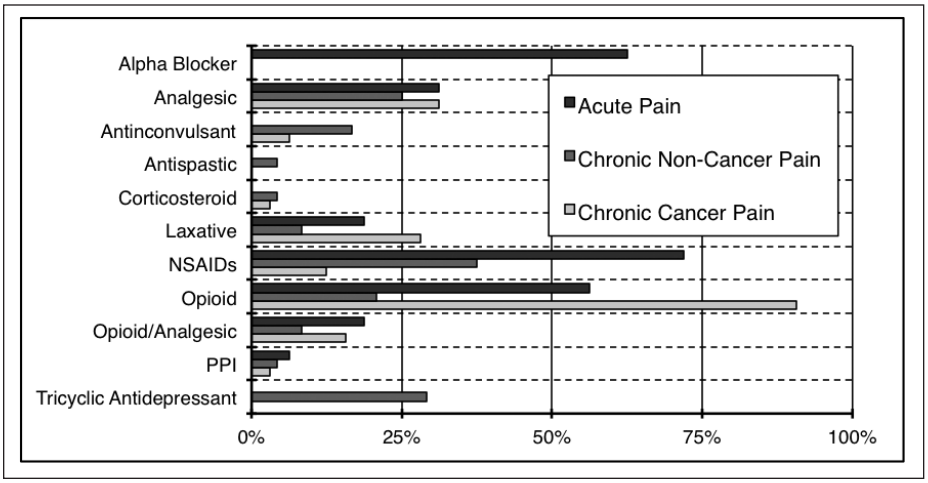

Fig. 4. Breakdown of hand-filled prescriptions.

Since the time of publication of the 2013 survey, various pain management guidelines have been published, with the Canadian guideline for opioids for non-cancer pain being one of the more recent ones.[33-37] Despite that, very few residents were aware of any guidelines; in fact, guidelines ranked as one of the least-employed resources among residents. Although most respondents prescribed opioids for CC pain, only 25% of them mentioned addiction as an item they would counsel on, and most indicated never/seldomly counselling on opioid disposal. This is problematic, as diversion is common; the non-medical use of prescription opioids among U.S. adults was 4.9% in 2013.[37]

Our results show that pain management should become a formal component of the academic curriculum for urology residents, complimenting the current experiential-based approach. This would help ensure that future consultants are confident to manage these often-complex problems. Recognizing the importance of pain management training, the 2019 Accreditation Council for Graduate Medical Education (ACGME) program requirements for graduate medical education in urology now contain specific items requiring programs to provide instruction and experience in pain management, with a focus on signs of addiction (requirement IV.C.2).[38]

This study has several limitations inherent to a study design involving a survey of a captured audience. This survey focused on urologists and clinical scenarios within this specialty, and hence, results may not extrapolate to other subspecialties. However, similar knowledge gaps have been identified in other specialties and other countries.[39-41] Second, this survey represents only a snapshot of self-reported attitudes and experience of pain management within their training. However, these residents were chosen close to completion of their training to ensure they had experienced all rotations and educational curricula set out by their respective programs. Third, this was a somewhat small sample size. However, the response rate of the residents and the consistency of responses throughout the survey attests to the robustness of the results and interpretation.

Conclusions

This survey demonstrated that experience in pain management remains variable among urology residents. Formal training in pain management remains a disproportionately small percentage of postgraduate urology training. Although residents reported adequate experience in managing AP, reported confidence in management of CC and CnC pain, as well as comfort using a variety of analgesic agents, was low. Resources used remain mostly unchanged from 2013, apart from greater dependence on online resources.

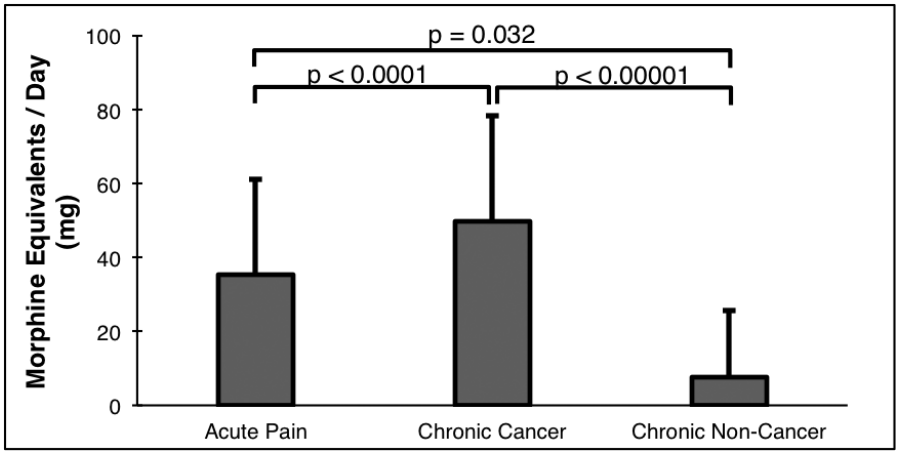

Fig. 5. Amount of opioid dispensed per prescription.

Competing interests: Dr. Nickel has been a consultant for Astellas, Auxillium, Eli Lilly, Farr Labs, Ferring, GSK, Pfizer, Redleaf Pharma, Taris Biomedical, Tribute, and Trillium Therapeutics; a lecturer for Astellas and Eli Lilly; and has participated in clinical trials supported by Eli Lilly, GSK, J&J, Pfizer, and Taris Biomedical. Dr. Siemens has participated in educational talks supported by Ferring; and has participated in clinical trials supported by Astellas, Janssen, and Pfizer. The remaining authors report no competing personal or financial interests related to this work.

This paper has been peer-reviewed.

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