Original article

ANALGESIC PRESCRIBING FOR PATIENTS DISCHARGED FROM AN ORTHOPAEDIC DEPARTMENT

Analgesic prescribing for orthopaedic patients

Ivan Selaković¹, Emilija Dubljanin Raspopović^{1,2}, Sanja Tomanović Vujadinović^{1,2}, Goran Tulić^{2,3}, Darko Milovanović^{2,3}, Marko Kadija^{2,3}

¹ Clinic for Physical Medicine and Rehabilitation, Clinical Center Serbia

² School of Medicine, University of Belgrade

³ Clinic for Orthopaedic Surgery and Traumatology, Clinical Center Serbia

Summary

Introduction: Uncontrolled postoperative pain is a major problem for functional recovery after orthopedic surgery. There is evidence that following patient discharge, moderate to severe pain is commonly reported early on and later in the postoperative period. The aim of the study was to analyze analgesic prescription habits at discharge of patients who went through surgery on the orthopedic department. The second aim was to determine if there are any disparities in the prescribed analgesics, depending on whether the operation was elective or traumatic. **Methods:** We performed a retrospective study including all patients who underwent surgery at the Clinic for orthopaedic surgery and traumatology over a 6 month period. The study included 371 patients. We recorded demographic data, discharge diagnoses, types of surgery and pain medications prescribed for use at home. **Results:** 87.9% patients received

no analgesic prescriptions at all at hospital discharge. In the group of patients who have been recommended analgesics, analgesics were optionally prescribed in 3.5%, whilst NSAIDs were prescribed for 8.6% patients. No patients received paracetamol or opioid analgesics. There were no statistically significant differences in prescribed analgesics depending on whether the operation was elective or posttraumatic. **Conclusion:** Results of this study show that doctors in our clinical setting underestimate the importance of the necessity to manage acute postoperative pain, especially in terms of prescribing opioids when needed. These findings emphasize the need for further research, education and guidelines in this area, as well as better access to the use of opioids.

Key words: analgesia, orthopaedic surgery, postoperative pain

Introduction

Uncontrolled pain is a major impediment to postoperative functional recovery and is a persistent problem worldwide^{1,2,3}. Regarding postoperative pain after elective orthopedic surgery, there is evidence that following patient discharge, moderate to severe pain is commonly reported early on^{4,5,6} and later in the postoperative period^{7,8}. Chan et al. reported that for more than half of the participants in their study, the most painful period was during the first 2 weeks at home⁹.

Despite the availability of evidence-based reports and guidelines^{10,11} postoperative pain is recognized internationally as being under-managed^{12,13,14}.

Inadequate pain management results in a significant proportion of postoperative patients seeking help from their general practitioner following

hospital discharge^{4,15}. Although patients can easily obtain analgesia from their GPs, which are a suitable source for such prescriptions^{16,17}, studies have shown an overall hesitance of general practitioners prescribing analgesia due to heavy workloads and a lack of confidence in their capacity for analgesic management^{18,19,20}. This insufficient management of postoperative pain results in a number of negative effects on the community, including disrupted sleep patterns, longer recovery periods, and a general delay in return to normal work and function^{21,22,23}.

The first goal was to analyze analgesic prescription habits when discharging patients from the orthopedic department after surgery. The second goal was to determine if there are any disparities in the prescribed analgesics, depending on whether the operation was elective or traumatic.

Methods

We performed a retrospective investigation including all patients that underwent surgery at the Clinic for orthopedic surgery and traumatology, Clinical Center of Serbia, over a 6 month period (starting January 1, 2012 through to June 30, 2012). All information was gained by examining the discharge lists.

Measured Variables

We recorded patient demographics (age and gender). In addition to the selected discharge diagnoses and types of surgery, we recorded pain medications prescribed for use at home. Prescribed pain medications were placed in the following categories: 1) no pain medication, 2) optionally prescribed pain medication, 3) prescribed pain medication (non-opioids (paracetamol, nonsteroidal anti-inflammatory drugs (NSAIDs)) or opioids). We divided surgery into two categories: (1) elective surgery and (2) posttraumatic surgery.

Data Analysis

We used descriptive statistics to describe the patient population, diagnoses, types of surgery and medications prescribed. We tested for associations between types of surgery and medication prescribed using the chi-square test.

Table 2. Analgesic prescribing at discharge home by type of surgery

Type of surgery	Analgesic prescribing at discharge			p
	No pain medication	Optional	NSAIDs	
Elective	115 (89.9%)	3 (2.3%)	10 (7.8%)	>0.05
Posttraumatic	211 (86.8%)	10 (4.1%)	22 (9.1%)	>0.05
Σ	326 (87.9%)	13 (3.5%)	32 (8.6%)	

Results

The study sample included 371 patients who met the eligibility criteria. The average age of our patients was 57.40 ± 20.27 years; 162 (43.67%) were male and 209 (56.33%) were female. Elective surgery was performed in 128 (34.5%), while surgery following trauma was performed in 243 (65.5%) patients.

Table 1 shows pain medications prescribed to patients at discharge from the hospital. 326 (87.9%) patients received no analgesic prescriptions at all at hospital discharge. In the group of patients who have been recommended analgesics, optionally prescribed analgesics were prescribed in 13 patients (3.5%), whilst doctors prescribed NSAIDs for 32 (8.6%) patients. No patients received paracetamol or opioid analgesic prescriptions in our study group.

Table 1. Analgesic prescribing at discharge

Analgesic prescription at discharge	Number (%)
No pain medication	326 (87.9%)
Optional	13 (3.5%)
Paracetamol	0 (0%)
NSAIDs	32 (8.6%)
Opioids	0 (0%)

Table 2 reveals analgesic prescribing patterns based on type of surgery. The great majority of patients who underwent surgery received no pain medication prescriptions at discharge, while a small proportion of patients in each group received NSAIDs at discharge. There were no statistically significant differences in analgesics prescription habits depending on whether the operation was elective or posttraumatic.

Discussion

In this study we focused on the habits of orthopedic surgeons regarding analgesics prescription upon discharge from the acute setting. To the best of our knowledge, there is a limited amount of studies that investigate analgesic prescription habits for discharged patients following orthopedic surgery^{24,25}.

For the majority of discharged patients in our study (87.9%) analgesics were not prescribed. Among patients who have been prescribed analgesic therapy none were prescribed opioids and paracetamol. NSAIDs were prescribed to 8.6 %, while analgesics were optionally prescribed to 3.5% of the patients. In addition, we found no differences in prescribing habits depending on the type of surgery that was performed.

Our results clearly reveal that there is no habit of prescribing analgesics by our orthopedists at the time of discharge. Analgesic prescription rates vary according to different studies^{9,24,26}, but generally all of them reported higher rates of prescribed analgesics as well as higher opioid prescription rates^{24,25,27}. None of the patients in our study were prescribed an opioid, whereas other studies have shown that among patients who received analgesics opioids were the most commonly prescribed class of pain medication^{9,28}. Aslam et al. reported that even in developing countries many used opioids in treating pain. According to a study done on 1,000 patients in a tertiary health institution in Pakistan paracetamol was the most frequently prescribed analgesic (34%) followed by NSAIDs (30.6%), opioids (26.3%) and aspirin (17.5%)²⁶. Petrack et al. reported that among 120 adult patients with long bone fractures 85% received a discharge analgesic prescription, including 64% who received an opioid²⁴. A further study of 166 adults with extremity fractures reported a significantly lower rate of analgesic prescription (28%) compared to previously mentioned studies, including a lower rate of opioid prescriptions (17%)²⁷.

Insufficient analgesic prescription can be explained in different ways. First, it might be a consequence of lack of awareness of importance of adequate pain management. Travis et al. also believe that pain management takes low priority in many developing countries²⁹. Second, there may be a lack of knowledge about how to effectively and safely manage postoperative pain. Inadequate and sparse analgesic prescription might be a consequence of lack of postoperative pain management guidelines³⁰. Also, due to potential adverse side effects of NSAIDs, it is possible that OTC medications were occasionally recommended, rather than prescribed.

It is evident from our results that orthopedic physicians in our setting fear prescribing opioids.

Despite their recognized effectiveness, opioids are often not freely available because of restrictive laws based on fear of misuse and abuse. According to literature, these excessive regulations are the major barrier to adequate acute pain control in developing countries³¹. In the last decade the International Narcotics Control Board (INCB) has published data showing that the developed world accounts for 87% of global opioid consumption, whereas the developing countries (where four-fifths of the world's population resides) account for only 13% of global opioid consumption.³² Furthermore, the price might be one of the reasons for low prescribing rates. Opioid drugs are up to 10 times more expensive in the developing world than in the developed world³³.

Our study has some limitations. Since the investigation was conducted in a single academic institution, the results may not be applicable to all practice settings. Results of this study raise the question whether doctors in our clinical setting are aware of the importance of writing specific analgesics and emphasize the need for further research, education and guidelines in this area. We must provide better access to potent analgesic drugs through amendment of restrictive laws and change barriers that result from lack of education regarding pain and pain medications. Educational initiatives are needed to address misconceptions about opioids among health care workers and the general public.

References

1. Morrison RS, Meier DE, Fischberg D, et al. Improving the management of pain in hospitalized adults. *Arc Internal Med* 2006;166(9):1033–9.
2. Goldberg GR, Morrison RS. Pain management in hospitalized cancer patients: a systematic review. *J Clin Oncol* 2007;25(13):1792–1801.
3. Max MB. How to move pain and symptom research from the margin to the mainstream. *J Pain* 2003;4(7):355–60.
4. Stockdale A, Bellman M. An audit of post-operative pain and nausea in day case surgery. *Eur J Anaesthesiol* 1998;15(3):271–4.
5. Rawal N, Hylander J, Nydahl PA, Olofsson I, Gupta A. Survey of postoperative analgesia following ambulatory surgery. *Acta Anaesthesiol Scand* 1997;41(8):1017–22.
6. McGrath B, Elgendy H, Chung F, et al. Thirty percent of patients have moderate to severe pain 24 hours after ambulatory surgery: A survey of 5,703 patients. *Can J Anaesth* 2004;51(9): 886–91.
7. Segerdahl M, Warren-Stomberg M, Rawal N, Brattwall M, Jakobsson J. Clinical practice and routines for day

- surgery in Sweden: results from a nation-wide survey. *Acta Anaesthesiol Scand* 2008;52(1):117-24.
8. Gramke HF, de Rijke JM, van Kleef M, et al. The prevalence of postoperative pain in a cross-sectional group of patients after day-case surgery in a university hospital. *Clin J Pain* 2007;23(6):543-8.
 9. Chan EY, Blyth FM, Nairn L, Fransen M. Acute postoperative pain following hospital discharge after total knee arthroplasty. *Osteoarthritis Cartilage* 2013;21(9): 1257-63.
 10. Macintyre PE, Schug SA, Scott DA, et al. *Acute Pain Management: Scientific Evidence*. 3rd edition. Melbourne: Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine; 2010.
 11. American Society of Anesthesiologists Task Force on Acute Pain Management. Practice guidelines for acute pain management in the perioperative setting: an updated report by the American Society of Anesthesiologists Task Force on Acute Pain Management. *Anesthesiology* 2004;100(6):1573- 81.
 12. Benhamou D, Berti M, Brodner G, et al. Postoperative Analgesic Therapy Observational Survey (PATHOS): a practice pattern study in 7 central/southern European countries. *Pain* 2008;136(1-2):134-41
 13. Rawal N, Allvin R: Acute pain services in Europe: a 17-nation survey of 105 hospitals. The EuroPain Acute Pain Working Party. *Eur J Anaesthesiol* 1998;15(3): 354-63.
 14. Apfelbaum JL, Chen C, Mehta SS, Gan TJ. Postoperative pain experience: results from a national survey suggest postoperative pain continues to be undermanaged. *Anesth Analg* 2003;97(2):534-40.
 15. McCormack TT, Collier JA, Abel PD, Collins CD, Ritchie WN. Attitudes to follow-up after uncomplicated surgery--hospital out-patients or general practitioner? *Health Trends* 1984;16(2):46-7.
 16. Rao SS, Cherukuri M. Management of hip fracture: the family physician's role. *Am Fam Physician* 2006;73(12): 2195-200.
 17. Carpenter RL. Optimizing postoperative pain management. *Am Fam Physician* 1997;56(3):835-44.
 18. Harle D, Ilyas S, Darrah C, Tucker K, Donell S. Community-based orthopaedic follow-up. Is it what doctors and patients want? *Ann R Coll Surg Engl* 2009; 91(1): 66-70.
 19. Bailey J, Roland M, Roberts C. Is follow up by specialists routinely needed after elective surgery? A controlled trial. *J Epidemiol Community Health* 1999;53(2): 118-24.
 20. Florey CV, Yule B, Fogg A, Napier A, Orbell S, Cuschieri A. A randomized trial of immediate discharge of surgical patients to general practice. *J Public Health Med* 1994; 16(4):455-64.
 21. VanDenKerkhof EG, Hopman WM, Towheed T, et al. Pain, health-related quality of life and health care utilization after inpatient surgery: a pilot study. *Pain Res Manag* 2006;11(1):41-7.
 22. Pavlin DJ, Chen C, Penaloza DA, Polissar NL, Buckley FP. Pain as a factor complicating recovery and discharge after ambulatory surgery. *Anesth Analg* 2002; 95(3): 627-34.
 23. Strassels SA, Chen C, Carr DB. Postoperative analgesia: economics, resource use, and patient satisfaction in an urban teaching hospital. *Anesth Analg* 2002;94(1): 130-7.
 24. Petrack EM, Christopher NC, Kriwinsky J. Pain management in the emergency department: Patterns of analgesic utilization. *Pediatrics* 1997;99(5):711-4.
 25. Selbst SM, Clark M. Analgesic use in the emergency department. *Ann Emerg Med* 1990; 19(9):1010-3.
 26. Aslam N, Shoaib MH, Bushra R. Analgesic Prescribing In Developing Countries. *Jordan Journal of Pharmaceutical Sciences* 2010;3(2):137-43.
 27. Ngai B, Ducharme J. Documented use of analgesics in the emergency department and upon release of patients with extremity fractures. *Acad Emerg Med* 1997; 4(12): 1176-8.
 28. Terrell KM, Hui SL, Castelluccio P, et al. Analgesic Prescribing for Patients Who Are Discharged from an Emergency Department. *Pain Med* 2010; 11(7):1072-7.
 29. Travis P, Bennett S, Haines A, Pang T, Bhutta Z, Hyder AA, et al. Overcoming health-systems constraints to achieve the Millennium Development Goals. *Lancet* 2004; 364(9437): 900-6.
 30. Size M, Soyannwo OA, Justins DM. Pain management in developing countries. *Anaesthesia* 2007; 62 Suppl 1: 38-43.
 31. Rajagopal MR, Joranson DE, Gilson AM. Medical use, misuse, and diversion of opioids in India. *Lancet* 2001; 358(9276): 139-43.
 32. International Narcotics Control Board. Report of the International Narcotics Control Board for 2006. New York: United Nations 2007. Available from: http://www.incb.org/documents/Publications/AnnualReports/AR2006/AR_06_English.pdf
 33. De Lima L, Sweeney C, Palmer JL, Bruera E. Potent analgesics are more expensive for patients in developing countries: a comparative study. *J Pain Palliat Care Pharmacother* 2004; 18(1):59-70.