A Qualitative and Quantitative Needs Assessment of Pain Management for Hospitalized Orthopedic Patients

GRACE A. CORDTS, MD, MS, MPH; MARIAN S. GRANT, DNP, CRNP; LYNSEY E. BRANDT, MD, PHARM.D; SIMON C. MEARS, MD, PHD

abstract

Despite advances in pain management, little formal teaching is given to practitioners and nurses in its use for postoperative orthopedic patients. The goal of our study was to determine the educational needs for orthopedic pain management of our residents, nurses, and physical therapists using a quantitative and qualitative assessment. The needs analysis was conducted in a 10-bed orthopedic unit at a teaching hospital and included a survey given to 20 orthopedic residents, 9 nurses, and 6 physical therapists, followed by focus groups addressing barriers to pain control and knowledge of pain management. Key challenges for nurses included not always having breakthrough pain medication orders and the gap in pain management between cessation of patient-controlled analgesia and ordering and administering oral medications. Key challenges for orthopedic residents included treating pain in patients with a history of substance abuse, assessing pain, and determining when to use long-acting vs short-acting opioids. Focus group assessments revealed a lack of training in pain management and the need for better coordination of care between nurses and practitioners and improved education about special needs groups (the elderly and those with substance abuse issues). This needs assessment showed that orthopedic residents and nurses receive little formal education on pain management, despite having to address pain on a daily basis. This information will be used to develop an educational program to improve pain management for postoperative orthopedic patients. An integrated educational program with orthopedic residents, nurses, and physical therapists would promote understanding of issues for each discipline.
Pain control after orthopedic surgery is often poor, despite advances in research on pain management. Inadequate pain management can result in decreased mobility, leading to negative clinical outcomes such as deep vein thrombosis, pulmonary embolism, coronary ischemia, pneumonia, poor wound healing, and delayed rehabilitation, which can increase length of stay, readmissions, and patient dissatisfaction.1,2 The reasons for poor postoperative pain management are multifactorial and complex, such as inadequate opioid prescribing, failure to apply equivalent analgesic principles, system factors such as fragmentation of care and lack of clear standards, and patient expectations.3-5 Although surgical pain guidelines exist, they are not consistently implemented.6-8 In a root-cause analysis, inadequate pain management was found to encompass health care professionals, the health care system, documentation, laws and regulations, society, and patients and families.9 Research has shown that the most effective strategies for improving pain management have been multidisciplinary and longitudinal.5,10,11

In an effort to understand which issues in our institution affect pain management in the orthopedic patient, we developed a quantitative and qualitative needs assessment strategy, which included a survey of nurses and orthopedic residents, followed by focus groups of nurses, rehabilitation therapists, and orthopedic residents. The goal of our study was to determine the educational needs for orthopedic pain management of our orthopedic residents, nurses, and physical therapists using a quantitative and qualitative assessment.

**Materials and Methods**

We conducted this quantitative and qualitative pain management needs analysis among the nursing (n=9), resident (2008-2009 academic year; postgraduate years 2-5; n=20), and rehabilitation therapy (n=6) staff assigned to our academic medical center’s 10-bed orthopedic unit. The analysis consisted of 2 parts: surveys and focus groups.

For the first part of this analysis, we developed 2 surveys on pain management, 1 for the nurses and 1 for the residents (Table 1). The rehabilitation therapists were not surveyed because they do not write orders or administer analgesics.) The 2 surveys were similar, but reflected the different roles of prescribing vs administering medications, and focused on 2 topics: the presence and quantity of any formal pain management training, and the knowledge and comfort level with areas identified as being potential issues in pain management. These areas were based on the literature and our observation of what is called “opiophobia,” ie, providers’ fears about using opioid medications.12 A review of our experience showed the following: inadequate or incorrectly calculated doses of opioids when converting from 1 opioid to another or from intravenous to oral, providers switching from an ineffective dose of 1 opioid to an ineffective dose of another when pain was poorly controlled rather than increasing the dose of the first medication, reluctance to provide adequate doses of opioids to patients with a history of chronic opioid use or substance abuse or to use basal rates on patient-controlled analgesia for patients with a history of opioid use, discounting patient pain reports, and fear of causing addiction. In an effort to uncover any addi-
tional issues, there were also 2 open-ended questions at the end of the surveys about the biggest challenge in treating pain.

For the second part of this analysis, the nurses, residents, and rehabilitation therapists participated in independent focus groups (conducted by 2 of the authors [M.S.G., L.E.B.]) about pain management. During the focus groups, care was taken to not lead the participants. Focus groups were audio taped, and the tapes were transcribed. Two of the authors (G.A.C., S.C.M.) then independently read the transcripts and recorded the themes of the interviews. The themes were then compared for agreement. The transcripts were read and interpreted without a preconceived template.

**RESULTS**

**Surveys**

**Nurses.** The survey data showed the nurses had varying levels of knowledge and comfort with pain management (Table 2). All 9 nurses said they had received pain management training, but most cited only 1- to 2-hour sessions and others could not remember when the training occurred. Key challenges included not always having breakthrough pain medication orders and the gap in pain management between discontinuation of patient-controlled analgesia and the institution of oral medications (Table 2).

**Residents.** There was a range of knowledge and comfort among residents (Table 3). Although the residents reported a much lower level of pain management training than did the nurses (only 4 of 20 residents), 12 thought they had received adequate training in prescribing opioids. Key challenges included treating pain in patients with a history of substance abuse, assessing pain, and determining when to use long-acting vs short-acting opioids (Table 3).

**Focus Groups Results**

The themes that emerged from the nurse, resident, and therapist focus groups focused on 3 general areas: knowledge base, special populations, and institutional or system issues (Table 4).

**Knowledge Base.** Lack of formal pain management training—ie, an apprenticeship or learn-by-the-seat-of-your-pants-type process—was described by both the nurses and residents:

“I don’t think I have ever had formal pain management training in medical school, which I think is a deficiency to some extent.” (resident)

“I don’t know that I’ve ever had a class.” (nurse)

“On-the-job training.” (resident)

In addition, there was no consistent use of evidence-based pain management:

“You just throw them on 10 [mg] of oxycodone and see how that works, then increase it up or down based on whatever their response is.” (resident)

“I don’t have the conversion, and it might be useful to have that, but I might not use it anyway. I don’t know.” (resident)

“I know that going [intravenous] to [oral] is not a fixed ratio. It depends on the drug… I don’t break out the calculator and try to figure it out. It is kind of like an educated guess.” (resident)

“[The senior resident] once told me you can’t overdose a patient who is narcotic dependent, and I have found that to be the truth.” (resident)

“It is very difficult to use a pain scale as a really objective means to measure pain. I think patients vary in terms of how educated they are with the pain scale or they just give you a number and it may or may not be accurate. I try to see what the vitals are, if they are tachycardia or hypertensive, things like that, or are they eating.” (resident)

Residents wanted to do a good job, were interested in information about pain management, and wanted easy access to that information:

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**Table 2**

<table>
<thead>
<tr>
<th>Question</th>
<th>No. Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you had training in pain management?</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Do you feel you received adequate training in using opioids?</td>
<td>3</td>
</tr>
<tr>
<td>3. Is patient-controlled analgesia basal rate needed for those on opioids as outpatients?*</td>
<td>6</td>
</tr>
<tr>
<td>4. Pain can be assessed by observing patient behavior.*</td>
<td>5</td>
</tr>
<tr>
<td>5. Some patients need higher doses of opioids than others.</td>
<td>9</td>
</tr>
<tr>
<td>6. Are you comfortable checking doses when changing intravenous opioid to oral?</td>
<td>7</td>
</tr>
<tr>
<td>7. Are you comfortable treating patients with history of substance abuse?</td>
<td>3</td>
</tr>
<tr>
<td>8. Do you ask patients about what pain medication has worked in the past?</td>
<td>9</td>
</tr>
<tr>
<td>9. Comfortable suggesting change in pain medication/dosage to the physician?</td>
<td>9</td>
</tr>
<tr>
<td>10. Are you concerned about addiction when giving opioids for pain?</td>
<td>1</td>
</tr>
<tr>
<td>11. If pain not controlled on 1 opioid, should you switch to another?</td>
<td>7</td>
</tr>
<tr>
<td>12. Patients often ___ report their pain.*</td>
<td>1</td>
</tr>
</tbody>
</table>

*Results do not total 9 because some surveys were missing responses.
Residents also voiced concerns about high doses of opioids in some patients and the concern for causing harm to the patient and being responsible for that harm.

“Just something that you could quickly go to.” (resident)

“I think it is important for the information to be somewhere that you can find online because I find a lot of things falling out of coat pockets.” (resident)

Residents also voiced concerns about high doses of opioids in some patients and the concern for causing harm to the patient and being responsible for that harm.

“When hurt the patient by overmedicating them because your name is going on the chart.” (resident)

*Special Populations.* Participants talked about the needs of special populations, i.e., geriatric patients, patients with addictions, and patients with chronic opioid use:

“You get older people who can get delirium if they are not treated or get delirium if they are treated and knowing which way to go. I think that is something I don’t have a good answer to.” (resident)

“…Very careful with the elderly.”

(nurse)

“We have this real population of folks who have substance abuse in their history or active or in the past that make it difficult to dose their medicine.” (resident)

“Some of the issues that we are having with people who are not narcotic naïve, people who come in with a long history of drug abuse, we are really, really frustrated because we can’t seem to get on top of it, and it gets to a point where you start noticing that it is not so much the drug—it’s the culture. It’s the culture that nurses have worrying about giving too many drugs, and it interferes sometimes with pain management.” (nurse)

“[Nurses] are the ones who get bothered by the patient all day and night if pain is an issue.” (resident)

“I mean I trust them. I mean sometimes I don’t trust their own judgment, but they are sitting by the bedside and see a change in pain. I think in general they are pretty fantastic as to know what is going on.” (resident)

“I think it is very important to choose the pain medication with the nursing team because they are the ones who really judge how much pain the patients have and for how long this medication works for.” (resident)

“[The physician has] issues of trust, trust in your assessment.” (nurse)

“…Twenty-five percent in my experience, that’s postop day 1 people. Yeah, I
have to scale back, about a quarter of them [because of pain issues].” (therapist)

“The biggest problem that they have is getting the physician, practitioner, to respond to us in a timely manner, and to trust us when we say this patient needs breakthrough pain [medicine].” (nurse)

Institutional/System Issues. Residents and nurses voiced appreciation of working together to treat pain, talked about needing to trust the assessment of the nurse, and addressed issues of trying to get orders for patients for pain medications. Nurses often had multiple patients at once requiring pain medications, and they voiced their frustrations with that. Residents, nurses, and therapists wanted a more consistent approach to pain management. There was concern that each attending physician had his or her own preferences for pain management approaches:

“There is not a real coordinated approach and just sometimes too many patients per provider.” (therapist)

“Pathways, just like there are with oxazepam, you know, like it is an identified pathway.” (resident)

“If there was more of a uniform way of dealing with postoperative pain [then] things might go smoother.” (nurse)

Practitioners recognized a need to have a multimodal approach to pain management:

“…I try real hard to hit with multimodal-type management.” (resident)

“…To ice them down afterwards…and things like that down in the operating rooms. It might cut down on some of the narcotic use if you are doing something as simple as icing them down on a regular schedule.” (therapist)

**DISCUSSION**

We have described the first phase (needs assessment) of an educational intervention to improve the treatment of postoperative pain for patients undergoing orthopedic procedures. Our study points out that residents and nurses continue to lack formal teaching on the basics of pain management and that they continue to rely on learning pain management via the apprenticeship model. Pain management training is not yet a standard part of medical school,[13] and the Accreditation Council for Graduate Medical Education does not require pain management as part of the requirements for orthopedic surgery residency. Certainly, orthopedic residents perform procedures that cause their patients pain, so understanding pain management principles is important. The residents surveyed indicated a high degree of comfort for pain management without formal training in that area.

All 3 disciplines voiced a desire for a consistent approach to pain management, which may be a function of the current lack of formal training in pain management and of attending physicians’ practice of using the medications they used in their residencies and with which they are familiar. Residents, therefore, must learn what each attending physician prefers. A recent survey of pain management by the American Orthopaedic Association and the Orthopaedic Research and Education Foundation found that orthopedic surgeons are not strongly influenced by peer recommendation or hospital pain management protocols.[15]

Special populations, particularly elderly patients and those with chronic use of opioids or a history of substance abuse, present particular concerns for residents, nurses, and therapists. For example, because pain can cause delirium, and the medication used to treat pain can also cause delirium, there needs to be a balance for treating pain in the elderly. The surveyed residents and nurses indicated they were not comfortable with high doses of opioids for patients who have been on opioids (and often require higher doses of opioids than other patients), partly because of the lack of training about opioids.[15]

We have also shown that providers continue to think that patients need to look like they are in pain to believe them. There seemed to be a disconnect between what residents said and what they do: although the residents almost unanimously indicated on the survey that they could not tell if a patient was in pain based on behavior, many in the focus groups voiced not believing patients were in pain if they were talking on the phone or “not acting like in pain.” This dichotomy is long standing and has been and continues to be a barrier to good pain management.

Our study had several limitations. First, the number of participants was relatively small. However, the study group included all the full-time orthopedic residents, nurses, and therapists at our hospital. Second, by design, we assessed only the needs at our hospital. Additional study is needed to assume broad applicability to all centers. Third, we also examined a unit that primarily addressed patients undergoing joint replacement. Practitioners caring for patients undergoing other procedures may have different needs.

**CONCLUSION**

To our knowledge, this report is the first qualitative and quantitative study of provider perceptions about pain management for postoperative orthopedic patients. We have shown that there continue to be issues around pain management and pain management education. Our survey shows that the further development of standardized protocols that encourage consistency may help in the management of pain. An integrated educational program with residents, nurses, and therapists would promote understanding of issues for each discipline. Based on these findings, the development of an educational strategy to improve pain management for postoperative orthopedic patients is underway.

**REFERENCES**