Original Article

Overprescribing and Undereducating: a Survey of Pre- and Postoperative Pain Protocols for Pediatric Anterior Cruciate Ligament Surgery

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Purpose: To establish a better understanding of the variations in pain management protocols and prescribing patterns for pediatric patients undergoing anterior cruciate ligament (ACL) reconstruction or repair. **Methods:** A 20-question multiple-choice survey was distributed to 3 professional orthopaedic societies to assess the pre-emptive and postoperative pain management prescribing patterns for pediatric patients undergoing ACL reconstruction or repair. Clinical agreement (defined as agreement between >80% of participants) and general agreement (defined as agreement between >60% of participants) were calculated based on responses as previously reported. **Results:** Clinical agreement was observed among the 68 respondents in use of a single shot nerve block before induction of anesthesia versus continuous use when a peripheral nerve block was used, "always" counseling patients on postoperative pain control, the prescribing of opioids postoperatively, and a lack of change in postoperative protocol when concomitant meniscal repair or meniscectomy was performed. General agreement was observed in the use of a peripheral nerve block, some pre-emptive analgesia practices, and the lack of counseling patients with regard to disposal of unused opioid pain medication postoperatively. Opioids were prescribed by 88% of participants postoperatively, with 48% prescribing 11 to 19 pills and 15% prescribing ≥20 pills. **Conclusions:** While pain management practices before and following ACL reconstruction and repair in the pediatric population remain varied, opioids are frequently prescribed postoperatively with many providers neglecting to provide instruction on excess opioid disposal. **Clinical Relevance:** ACL reconstruction and repair is becoming increasingly common in the pediatric population. Clinical guidelines that establish pre-emptive and postoperative pain-control protocols should be considered to determine safe and optimal pain control throughout the duration of care while minimizing opioid prescribing and consumption.

Introduction

The incidence of anterior cruciate ligament (ACL) injuries in pediatric (aged ≤17 years) patients has been reported to increase at an average annual rate of 2.3% in the United States from 1994 to 2013.[1] This is associated with the 5.7-fold increase in the number of pediatric patients undergoing ACL surgery in the last decade.[2,3] Effective pain control following ACL reconstruction and repair remains essential to ensuring early mobilization, timely discharge, and an overall positive patient experience while minimizing complications or inpatient admission due to poor pain control.[4,5] Due to the pain associated with ACL surgery, the use of a multimodal pain control strategy, using nerve blocks preemptively, as well as oral medication both before and following surgery, has become popular.[5-9] However, despite the increased prevalence of ACL reconstruction and repair performed in pediatric patients, the influence of pre-emptive and postoperative pain management protocols on pain control remains limited.

Santana et al.[10] reported in their retrospective review of pediatric patients undergoing ACL reconstruction from 2013 to 2017 that patients receiving a combined femoral

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and sciatic nerve block before surgery spent less time in the postanesthesia care unit (PACU) and consumed fewer opioids postoperatively when compared with patients receiving an isolated femoral nerve block and those treated with only a postoperative intra-articular bupivacaine injection. Although postoperative analgesia use aside from opioids was not analyzed in this study, surgeons and patients must be cautious of the associated prolonged motor paralysis and muscle weakness associated with sciatic and femoral nerve blocks.[11,12] Micalizzi et al.[13] speculated that the lack of studies analyzing pediatric pain management following ACL surgery is secondary to physicians treating pediatric patients using the same standard of care used for adult patients and the challenges in performing research in pediatric patients due to variations in growth rates and size affecting study populations and pharmacokinetics.

The purpose of this investigation was to establish a better understanding of the variations in pain-management protocols and prescribing patterns for pediatric patients undergoing ACL reconstruction or repair. We hypothesized that pain management protocols would be largely varied with a lack of clinical agreement (defined as agreement between >80% of participants) based on the use of preemptive analgesia, with the majority of respondents reporting the use of opioid pain medications postoperatively.

Methods

Study Design and Administration

This study was preapproved by the institutional review board at Rush University Medical Center. The authors conducted an electronic cross-sectional survey of currently practicing orthopaedic surgeons on their preference for preemptive pain control (defined as medications administered in the preoperative area 1-2 hours before surgery) and postoperative pain control following pediatric ACL reconstruction or repair. The survey consisted of 20 multiple-choice questions divided into 3 categories: surgeon demographics, training, and practice (5 questions); nerve blocks (3 questions); and pre- and postoperative pain control (12 questions) (Appendix Table 1, available at www.arthroscopyjournal.org). Seven questions had an "other" option, allowing surgeons to type in a free response answer if their answer did not fit into an already listed option. Before survey distribution, a literature search was performed to ensure all relevant options were included as answers, while all questions and answer choices were screened by 2 senior authors (J.C. and M.K.). The distributed survey questions were not previously validated.

The survey was formatted on the Microsoft Forms platform (Microsoft, Redmond, WA). Following approval from each of the following orthopaedic professional societies, a survey link was posted on the respective webpages: American Orthopedic Society for Sports Medicine, Arthroscopic Association of North America, and European Society of Sports Traumatology, Knee Surgery & Arthroscopy. The survey was kept open for a total of 60 days (October 2020 to December 2020), and no follow-up communication or reminders were sent. Incomplete surveys were excluded from analysis.

Data Analysis

Responses were collected and tabulated. Similar to previous survey studies, statistical analyses were not performed.[14-17] Clinical agreement among responses was defined by a minimum of 80% agreement in responses, whereas general agreement was defined as a minimum of 60% agreement.[14,18,19] Responses were analyzed according to practice type, provider sex, and fellowship training (pediatric orthopaedics, sports medicine, or dual pediatric orthopaedics and sports medicine).

Results

Participant Practice Demographics

A total of 84 surveys were returned, of which 81% (n = 68/84) of surveys were completed in full and underwent analysis. Most respondents reported performing either 6 to 15 or ≥30 pediatric ACL reconstruction or repair procedures annually (Table 1). The majority (31%; n = 21/68) of surgeons reported being in practice for 5 to 10 years, were male (72%; n = 49/68), and worked in an academic setting (34%; n = 23/68). Responding surgeons were primarily fellowship trained in pediatric orthopaedics (63%; n = 42/67).

ACL Reconstruction or Repair Analgesia Practices

Seventy-two percent (n = 48/68) of respondents reported using peripheral nerve blocks before the induction of analgesia, with the majority (60%; n = 29/48) using adductor canal blocks, followed by femoral nerve blocks (15%; n = 7/48) (Table 2). A single shot block (87%; n = 41/47) was more commonly used compared with continuous administration. Six surgeons (13%) reported using blocks following induction of anesthesia.

Pre-emptive analgesia was used by 28% (n = 19/68) of respondents, with the most commonly used medications being acetaminophen and gabapentin (Table 3). Sixty-three percent (n = 12/19) of respondents reported their decision to use preemptive analgesia to be based on anesthesiologist preference (Table 3).

Following ACL reconstruction or repair, the most common analgesic provided to patients was ibuprofen (46%; n = 31/68), followed by oxycodone–acetaminophen (40%; 27/68), acetaminophen (35%; 24/68) and hydrocodone–acetaminophen (34%; 23/68) (Table 4). Overall, opioids were prescribed by 88% (n = 60/68) of respondents, with the most commonly

Table 1. Participant Demographics

Question, Answer Choices	Number of Responses (%)
Number of pediatric (patient age ≤17 years) ACL reconstruction or repair procedures performed annually	82
0	14 (17%)
1-5	12 (15%)
6-15	20 (24%)
15-29	16 (20%)
≥30	20 (24%)
Number of years in practice	68
<5 years	8 (12%)
5-10 years	21 (31%)
11-15 years	14 (21%)
16-19 years	13 (19%)
≥20 years	12 (18%)
Sex	68
Male	49 (72%)
Female	19 (28%)
Practice environment	68
Private	12 (18%)
Academic	23 (34%)
Private/academic	16 (24%)
Hospital employee	16 (24%)
Other	1 (2%)
Fellowship training	67*
Pediatric orthopaedics	42 (63%)
Sports medicine	8 (12%)
Dual pediatric/sports medicine	16 (24%)
None	1 (2%)

*Response not provided by one participant.

prescribed quantity range recorded as 11 to 19 (Table 4). The performance of concomitant meniscectomy or meniscal repair did not lead to a change in the surgeon's postoperative pain regimen for 99% (n = 66/67) of respondents. Previous training or experience was reported as the primary factor influencing postoperative pain management protocol for 74% (n = 50/68) of surveyed respondents (Table 4). Eighty-five percent (n = 58/68) of respondents reported "always" providing written or verbal instructions regarding postoperative pain control; however, 63% (n = 43/68) reported not providing instructions to patients and parents on how to properly dispose of unconsumed opioid tablets (Table 5). One-hundred percent (n = 68/68) of surgeons reported patients generally consumed opioid pain medication following ACL reconstruction or repair for 2 weeks or less, with 68% (n = 46/68) reporting consumption for less than 1 week (Table 5). Most respondents (79%; n = 54/68) reported that very few (defined as ≤20%) patients reported poor pain control for greater than 1 week following surgery (Table 5). Clinical and general agreement among respondents is presented in Table 6.

Discussion

The main findings from this investigation were that although the majority of providers do not provide recommendation regarding the proper disposal of excess opioids, opioids remain commonly prescribed following pediatric ACL reconstruction or repair. Variability exists among postoperative analgesia regimens and the quantities of opioid tablets prescribed following surgery. Clinical agreement was observed in the prescribing of opioid pain medication postoperatively, the use of a single-shot nerve block before induction of anesthesia versus continuous use when a peripheral nerve block is used, "always" counseling patients on postoperative pain control, and a lack of change in postoperative protocol when concomitant meniscal repair or meniscectomy is performed.

Peripheral nerve blocks remain a popular method of perioperative pain management. Hall-Burton et al. reported the use of peripheral nerve blocks in pediatric patients undergoing ACL reconstruction to be cost-effective (as much as $250 cost savings) while reducing PACU opioid consumption (from 0.125 mg/kg to 0.051 mg/kg) and PACU length of stay (from 279 to 227 minutes).[20,21] Our survey shows that 72% of respondents reported use of preoperative peripheral nerve blocks, with adductor canal blocks being the most commonly (60%) used, followed by femoral nerve blocks (15%). Adductor canal blocks possess the advantage of providing pure sensory blockade, avoiding interruption of motor function and quadriceps weakness experienced with femoral nerve blocks, which have been shown to increase the risk of falls following surgery.[22-25]

Only 28% of respondents reported administering analgesic medications before surgery. Of those, the most frequently administered medication was acetaminophen (63%) followed by gabapentin (32%). Acetaminophen has both analgesic and antipyretic properties with minimal impact on soft tissue and osseous healing,[26] whereas gabapentin has been shown

Table 2. Nerve Block Use and Preference Before Pediatric ACL Reconstruction or Repair

Question, Answer Choices	Number of Responses (%)
Use of peripheral nerve block	67
Yes	48 (72%)
No	19 (28%)
Type of peripheral nerve block	48*
Femoral nerve block	7 (15%)
Sciatic nerve block	1 (2%)
Adductor canal block	29 (60%)
Other	11 (23%)
Single shot or continuous	47†
Single shot	41 (87%)
Continuous	6 (13%)

ACL, anterior cruciate ligament.
*Includes only the responses of those that answered "yes" to the use of a peripheral nerve block.
†One participant that answered "yes" to the use of a peripheral nerve block did not provide a response

Table 3. Preemptive Analgesia Before Pediatric ACL Reconstruction or Repair

Question, Answer Choices	Number of Responses (%)
Routine use of preemptive analgesia (medications administered in preoperative area 1-2 hours before the operation)	68
Yes	19 (28%)
No	49 (72%)
Medications included in preemptive analgesia regimen (participants could check all that apply)	19*
Hydromorphone–acetaminophen	1 (5%)
Oxycodone–acetaminophen	2 (11%)
Tylenol	12 (63%)
Tramadol	1 (5%)
Meloxicam	2 (11%)
Gabapentin	6 (32%)
Ibuprofen	1 (5%)
Aspirin	0 (0%)
Toradol	2 (11%)
Other	1 (5%)
Primary factor influencing choice for preemptive analgesia	19*
Anesthesiologist preference	12 (63%)
Previous training or experience	4 (21%)
Published research	2 (11%)
Other	1 (5%)

ACL, anterior cruciate ligament.
*Includes only the responses of those that answered "yes" to routine use of preemptive analgesia

to reduce both pain and anxiety with few adverse effects.[27] Of the respondents reporting use of preoperative analgesics, the majority stated their decision was guided based on anesthesiologist recommendations. While research examining optimal preoperative pain medication regimen is limited and further investigations are warranted, further collaboration between the anesthesia and surgical teams on preoperative pain protocols may aide in minimizing patient discomfort before ACL surgery.

Variability was appreciated on the types of postoperative medications prescribed following ACL reconstruction and repair. Nonsteroidal anti-inflammatory drugs (NSAIDs) as a group have been used consistently in adult and pediatric ACL surgery.[27,28] However, controversy surrounding the effects of certain NSAIDs (particularly ketorolac) on soft-tissue healing exists, while caution must be used when recommending NSAIDs for asthmatics or those requiring long-term use.[26,29]

Meanwhile, the use of opioid analgesics remains a topic of debate among the public and medical professionals given their high addiction potential, side effects, and the ongoing opioid crisis.[30] Particular caution must be exercised when prescribing opioids for younger pediatric patients, as dosing is weight based, increasing the risk for medical error and inappropriate prescribing. Taylor et al.[30] reported that of 100 patients (median age 16 years; range 13-21 years) the median number of opioid tablets (oxycodone 5 mg) prescribed to patients undergoing ACL reconstruction was 60 tablets, with patients only consuming an average of 36% of their prescription. Our study found that only 15% of respondents prescribe ≥20 opioid tablets at discharge following pediatric ACL reconstruction or repair, while 10% reported not prescribing any opioid medications. While the specific reasons behind each respondent's decision to prescribe their preferred amount of opioids was not assessed, our findings may reflect increasing physician education and awareness of the dangers of opioid consumption. Further study is necessary to investigate alternative pain control modalities, minimizing the need for opioids postoperatively, especially in pediatric patients.

A total of 85% of respondents reported always providing written instructions or counseling patients on post-operative pain regimens following surgery, whereas 63% of physicians surveyed reported not counseling patients on how to dispose of unconsumed opioid tablets postoperatively. These results are in line with a recent survey of members of the American Pediatric Surgery Association, which found that of 204 surgeons, 64%

Table 4. Postoperative Analgesia Protocol Following Pediatric ACL Reconstruction or Repair

Question, Answer Choices	Number of Responses (%)
Medications prescribed postoperatively (participants could check all that apply)	68
Hydromorphone–acetaminophen	23 (34%)
Oxycodone–acetaminophen	27 (40%)
Tylenol	24 (35%)
Tramadol	6 (9%)
Meloxicam	1 (2%)
Gabapentin	2 (3%)
Ibuprofen	31 (46%)
Aspirin	2 (3%)
Toradol	11 (16%)
Other	21 (31%)
Use of cryotherapy postoperatively	68
Yes	29 (43%)
No	39 (57%)
Standard quantity of opioids prescribed	67*
0 tablets	7 (10%)
1-5 tablets	1 (2%)
6-10 tablets	17 (25%)
11-19 tablets	32 (48%)
≥20 tablets	10 (15%)
Change in postoperative pain protocol regimen when concomitant meniscal repair or meniscectomy performed	67*
Yes	1 (2%)
No	66 (99%)
Primary factor influencing postoperative pain protocol regimen	68
Anesthesiologist preference	8 (12%)
Previous training or experience	50 (74%)
Published research	7 (10%)
Other	3 (4%)

ACL, anterior cruciate ligament.
*Response not provided by one participant.

Table 5. Postoperative Pain Control Counseling and Pain Relief Following Pediatric ACL Reconstruction or Repair

Question, Answer Choices	Number of Responses (%)
How often are written instructions or verbal counseling on postoperative pain control provided	68
Always	58 (85%)
Frequently (67%-99% of the time)	4 (6%)
Sometimes (33%-67% of the time)	5 (7%)
Infrequently (1%-33% of the time)	1 (2%)
Never	0 (0%)
Counseling patients on what to do with extra pills	68
Take pills to the police station	3 (4%)
Flush pills down the toilet	5 (7%)
Tell them something else	17 (25%)
None	43 (63%)
Typical duration in which patients consume oral pain medication postoperatively	68
<1 week	46 (68%)
1-2 weeks	22 (32%)
≥2 weeks	0 (0%)
Percentage of pediatric patients reporting poor pain control ≥7 days after procedure	68
Almost all (>81%-100% of patients)	0 (0%)
Most (61%-80% of patients)	0 (0%)
Approximately half (41%-60% of patients)	2 (3%)
Few (21%-40% of patients)	12 (18%)
Very few (≤20% of patients)	54 (79%)

ACL, anterior cruciate ligament.

reported not providing instruction on how to properly dispose of excess opioid tablets. Furthermore, 36% of respondents reported that they themselves did not know how to properly dispose of excess tablets.[31] Given the highly personal and varied postoperative pain medication requirements and culture of overprescribing of pain medication, proper patient and parent education on all aspects of opioid prescribing are essential, especially when considering the implications of overprescribing. Namely, the misuse of prescription opioid medications has been shown to put adolescents and young adults at a 13 times greater risk of heroin initiation.[32]

A total of 68% of surgeons reported that patients used oral pain medication for less than 1 week following ACL surgery. This timing is slightly less when compared with the findings reported by Taylor et al.[30] in which 84.5% (n = 65/77) of pediatric and adolescent patients reported discontinuation of opioid pain medication at an average of 1 week after surgery. Furthermore, 79% of respondents in our survey reported that ≤20% of pediatric patients undergoing ACL reconstruction reported poor pain control greater than 1 week following surgery. This reflects the highly effective, yet varied, protocols currently employed by surgeons, while also demonstrating the need for further improvements to multimodal pain control protocols to help minimize postoperative opioid prescribing and consumption following pediatric ACL surgery.

Cryotherapy, in the form of external ice application, has been shown to be an effective non-pharmacologic modality to reduce pain.[33,34] Application of a simple ice compress after ACL surgery with concurrent physical therapy has been in shown to effectively reduce pain and increase knee range of motion.[35] Other studies evaluating soft tissue injuries treated postoperatively with cryotherapy have reported a similar decrease in pain, length of hospital stay, drug intake, as well as increased quality of life.[34,36-38] Care should be taken when using cryotherapy to protect the superficial nerves by avoiding application for longer than 30 minutes.[39] A recent study by Forrester et al.[40] reported that only 43% of online protocols for rehabilitation following pediatric ACL reconstruction included cryotherapy, despite its proven efficacy, ease of access, and low cost. As such, while not reaching the threshold for general agreement, consideration should be given among surgeons for the implementation of a postoperative cryotherapy regimen. Given the rising incidence of ACL injuries in the pediatric population, clinical guidelines that establish preemptive and postoperative pain control protocols should be further investigated to determine safe and optimal pain control throughout the duration of care while minimizing opioid prescribing and consumption.

Limitations

This study is not without limitations. First, a sampling bias is present and inherent to our methodology as the survey was only distributed to members of orthopaedic professional societies. Moreover, the platforms on

Table 6. Clinical and General Agreement Among Respondents

Clinical Agreement

- No Change in Postoperative Pain Management Protocol when Concomitant Meniscal Repair or Meniscectomy Is Performed (99%)
- Inclusion of opioids in Postoperative Pain Protocol (88%)
- Single Shot before Induction of Anesthesia when peripheral Nerve Block Is Used (87%)
- Always Providing Written Instructions of Verbal Counseling on Postoperative Pain Protocol (85%)

General Agreement

- "Very few" Patients Reporting Poor Pain Control ≥7 days following Surgery (79%)
- Postoperative Pain Regimen Based on previous Training or Experience (74%)
- Use of peripheral Nerve Block before Induction of Anesthesia (72%)
- Lack of Routine Preemptive Analgesia use before Surgery (72%)
- Preemptive Analgesia Practices Based on Anesthesiologist Preference (63%)
- Inclusion of acetaminophen in Preemptive Analgesia Regimen (63%)
- Lack of Counseling Patients on opioid Tablet Disposal (63%)
- Pain Medication Consumption for <1 week Postoperatively (63%)
- Use of an adductor Canal Block when peripheral Nerve Block Is Used (60%)

which surveys were distributed (webpages, monthly society emails) made it difficult to obtain responses, leading to a relatively low response rate. Second, the questions were postulated, for the most part, in closed-ended fashion. The multiple-choice options presented to respondents may therefore not be representative of all possible answers. In addition, some of the questions may have yielded more specific responses if additional options were presented as answer choices. For example, we asked how many opioids were prescribed rather than the number of doses, which may have altered some surgeons' answers due to weight-based dosing. Lastly, we anticipate a number of responses, particularly those regarding the length of time patients consumed opioid pain medication, to be subject to recall bias, especially in surgeons performing a lower number of ACL reconstruction or repair procedures annually.

Conclusions

While pain management practices before and following ACL reconstruction and repair in the pediatric population remain varied, opioids are frequently prescribed postoperatively, with many providers neglecting to provide instruction on excess opioid disposal.

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Appendix

Appendix Table 1. Survey Administered to Participants

1. Approximately how many pediatric (patient age ≤17 years) ACL reconstruction or repair procedures do you perform annually?
   a) 0 procedures
   b) 1-5 procedures
   c) 6-15 procedures
   d) 15-29 procedures
   e) ≥30 procedures
2. How long have you been in practice?
   a) < 5 years
   b) 5-10 years
   c) 11-15 years
   d) 16-19 years
   e) ≥20 years
3. What is your sex? a) Male
   b) Female
4. Which of the following best describes your current practice environment?
   a) Private
   b) Academic
   c) Private/academic
   d) Hospital employee
   e) Other: _____
5. Are you fellowship trained?
   a) Yes, pediatric orthopaedics
   b) Yes, sports medicine
   c) Yes, dual pediatric/sports medicine
   d) No
6. Do you us a peripheral nerve block before the induction of anesthesia?
   a) Yes
   b) No
7. Which type of peripheral nerve block do you use before the induction of anesthesia?
   a) Femoral nerve block
   b) Sciatic nerve block
   c) Adductor canal block
   d) Other: _____
   e) I do not use a peripheral nerve block before anesthesia
   f) I do not use a peripheral nerve block because I use spinal anesthesia
8. Do you use a single shot or continuous peripheral nerve block before the induction of anesthesia?
   a) Single shot
   b) Continuous
   c) I do not use a peripheral nerve block before anesthesia
9. Do you routinely use preemptive analgesia (medications administered in preoperative area 1-2 hours before the operation) before pediatric ACL reconstruction or repair?
   a) Yes
   b) No
10. Which of the following medications do you routinely use for preemptive analgesia before pediatric ACL reconstruction or repair? Check all that apply.
    a) Hydrocodone−acetaminophen
    b) Oxycodone−acetaminophen
    c) Tylenol
    d) Tramadol
    e) Meloxicam
    f) Gabapentin
    g) Ibuprofen
    h) Aspirin
    i) Toradol
    j) Other: _____
    k) I do not use preemptive analgesia
11. What is the primary factor that influences your choice for preemptive analgesia?
    a) Anesthesiologist preference
    b) Previous training or experience
    c) Published research
    d) Other: _____
    e) I do not use preemptive analgesia
12. Which of the following do you typically prescribe to pediatric patients following ACL reconstruction or repair? Check all that apply.
    a) Hydrocodone−acetaminophen
    b) Oxycodone−acetaminophen
    c) Tylenol
    d) Tramadol
    e) Meloxicam
    f) Gabapentin
    g) Ibuprofen
    h) Aspirin
    i) Toradol
    j) Other: _____
13. Do you recommend cryotherapy postoperatively?
    a) Yes
    b) No
14. What is the standard quantity of medication of opioids you prescribe for pain after pediatric ACL reconstruction or repair?
    a) 0 tablets
    b) 1-5 tablets
    c) 6-10 tablets
    d) 11-19 tablets
    e) ≥20 tablets
    f) I do not prescribe opioid pain medication
15. Does your postoperative pain protocol regimen change when concomitant meniscal repair/meniscectomy is performed?
    a) Yes
    b) No
16. How often do you provide written instructions or verbal counseling on postoperative pain control after an ACL reconstruction?
    a) Always
    b) Frequently (67%-99% of the time)
    c) Sometimes (33%-67% of the time)
    d) Infrequently (1%-33% of the time)
    e) Never
17. Do you counsel patients on what to do with extra pills?
    a) Yes, I tell them to bring them to the police station
    b) Yes, I tell them to flush them down the toilet
    c) Yes, I tell them something else: _____
    d) No
18. Generally, how long do patients consume oral medication for pain following pediatric ACL reconstruction or repair?
    a) <1 week
    b) 1-2 weeks
    c) ≥2 weeks
19. What is the primary factor that influences your pain management protocol after pediatric ACL reconstruction or repair?
    a) Anesthesiologist preference
    b) Previous training or experience
    c) Published research
    d) Other: _____
20. What percentage of pediatric patients report poor pain control ≥7 days following ACL reconstruction or repair?
    a) Almost all (>81-100% of patients)
    b) Most (61%-80% of patients)
    c) Approximately half (41%-60% of patients)
    d) Few (21%-40% of patients)
    e) Very few (≤20 % of patients)

ACL, anterior cruciate ligament.