

Patient Experiences as Knowledge for the Evidence Base

A Qualitative Approach to Understanding Patient Experiences Regarding the Use of Regional Anesthesia for Hip and Knee Arthroplasty

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Background and Objectives: It is reported that patients continue to have misgivings about regional anesthesia (RA) despite strong evidence to support its use for hip and knee replacement surgery. To date, no one has had an opportunity to study the experiences of patients who have undergone both types of anesthesia for these procedures.

Methods: Using descriptive qualitative methods, 12 patients who had hip or knee replacements under both RA and GA at two different time points (excluding revisions) were interviewed using purposeful sampling until saturation had been reached. Following transcription of each tape, a small study team met over the course of several months to read and discuss each transcript. A coding template was developed, and emerging themes noted.

Results: For the majority of patients, RA was either well tolerated or preferred. Having a previous negative experience with general anesthesia was common and was strongly associated with a patient's satisfaction with RA. Patients also described being highly influenced by the preference of their surgeon.

Conclusions: These findings have important implications. First, many patients were surprisingly neutral about the procedure and seemed more fearful of anesthesia in general rather than of either technique specifically. This finding, combined with patient's influence by clinician preference, underscores the importance of physician support for RA. Some participants identified one of their misgivings about RA as being fear of being awake, which is consistent with the medical literature. Our findings also support the idea that from a patient's perspective, appropriate sedation while undergoing RA may be important.

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The practice of evidence-based medicine (EBM) stipulates the need for physicians to take into account patient preferences. However, there is a paucity of empirical research that describes how this is, or might be, best accomplished.¹ Those studies that have explored this issue have reported that it is difficult to judge or assess patient preferences.² Our team undertook a qualitative study to explore patient experiences of an evidence-based approach to anesthesia for patients undergoing hip and knee arthroplasty.

Although there is strong medical and scientific evidence to support the use of regional anesthesia (RA), compared with general anesthesia (GA), in patients undergoing major orthopedic surgery,³ patient experiences and perspectives may constitute another form of evidence that must be taken into account in providing this service. Patients who have RA have been shown to have reduced morbidity and mortality and improved pain control after surgery compared with those who have general anesthesia.⁴ However, patients continue to have misgivings and fears about RA, some of which have been identified in previous studies.^{5,6} To date, no one has had an opportunity to study the experiences of patients who have undergone 2 identical surgeries with both types of anesthesia. This qualitative study explored the experiences of patients who have undergone both types of anesthesia for hip or knee replacement at a specialized center that promotes the use of RA.

The importance of qualitative methods in health research is now well established. Many researchers have specifically focused on demonstrating the uses of qualitative research for health services research,^{7–10} for arguing its quality and how it can be evaluated,^{11,12} or for demonstrating for its applicability within specific areas, such as public health research,¹³ nursing,¹⁴ and clinical practice.¹⁵ The polarization of the debates “between” qualitative and quantitative approaches has more recently been resolved through an increasing understanding that different types of questions are best answered by different types of approaches. Our team wanted to address the experience of the patient in advocating RA as a best practice for hip and knee surgery.

METHODS

Using purposeful sampling, a small percentage of patients were invited to participate in a descriptive qualitative study to explore their experiences. Qualitative description has been described as a method that permits the summarizing of a phenomenon in everyday terms.¹⁶ Qualitative research is considered naturalistic insofar as it relies on what the participants already know, think, and feel before the study without any intervention or alteration by the researcher.¹⁶ Therefore, data collection is aimed at discovering and exploring a participant's experiences, and analysis is aimed at making sense of these experiences. A qualitative design was deemed particularly suitable for our study purposes as it allowed patient experiences to be captured with little intervention by the study team. Ethics approval was received from the Sunnybrook Health Sciences Center.

Our strategy for obtaining study participants involved developing a data set from electronic records. From this set, our team selected a purposive sample of patients who have had both hips or both knees replaced in the last 10 years using both RA and GA on separate occasions, with the last surgery being within the past 5 years. Maximum variation sampling was used to select patients by age, sex, and occupation to obtain as much diversity as possible.¹⁷ Qualitative sampling is purposive and

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requires that enough data are generated to sufficiently explore the issues under investigation. The data reach a point of saturation when no new information or themes are being generated; at this point, interviewing stops. In addition, qualitative samples do not have to observe the representativeness of the source population because the purpose is to explore, not measure. Compared with quantitative studies, the qualitative sample number needed tends to be smaller; in qualitative research, this is accepted to generally occur within 8 to 15 interviews.^{18,19} Selected patients were sent a consent form, and a research assistant telephoned patients to determine a good opportunity to carry out the interviews. Interviews were carried out in the office of one of the researchers using a semistructured interview guide. Interview questions were constructed to address 4 specific aspects of the patient's experience. The guide (Appendix) was constructed to begin with open, broader questions about the patient's experiences leading up to surgery, and then questions were asked about each specific surgery. A series of questions then asked the patient to reflect on any differences or similarities between the 2 surgeries. Finally, a series of questions were introduced in relation to the patients' understanding of pain and pain management and their knowledge of how anesthesia may have influenced their experiences. All questions were meant to be exploratory and relied on prompts to allow differences between patients in perceptions and experiences to emerge during the course of the interview.

The interview guide was pilot tested with one participant identified by our research team. Subsequent interviews were conducted both face-to-face and by telephone. Telephone interviewees submitted a written consent by mail in addition to verbal consent over the telephone. The literature supports the use of both face-to-face and telephone interviews within the same study without undermining the trustworthiness of the findings.²⁰ All interviews (both pilot and study interviews) were recorded and professionally transcribed verbatim for data analysis. Although there is a risk of introducing bias into a study because only one method of data collection was used (in-depth interviews), a number of strategies were used to enhance the trustworthiness of the findings,^{12,21} including recursive questioning during the interviews and audit trails, which took the form of detailed notes that were taken throughout each meeting to keep a record of the developing analysis. Interviews were concluded when the study team determined that saturation had been achieved; this is the point at which no new information is being generated.²²

Following transcription of each tape, a small study team met over the course of several months to read and discuss each transcript in detail. The core study team consisted of an anesthesiologist, a graduate student, and a medical sociologist trained in qualitative methods. Using standard qualitative procedures, a coding template was developed, and each transcript coded. Codes identify features of the data that are pertinent to the research questions and organize data into more concise ideas that can be eventually grouped into themes.²³ In addition, a larger team met twice throughout the study period to discuss preliminary themes as they emerged. This larger group included an advanced practice nurse, a pain psychologist, a physiotherapist, and a PhD nurse-researcher.

RESULTS

Twelve participants were interviewed, 4 patients had knee replacements, 7 had hip replacements, and 1 had both hip and knee replacements. Six participants were men, and 6 were women. They ranged in age from mid-40s to early 80s. Their professions (or former professions, if retired) included full-time housekeeper,

carpet layer, teacher, nurse, accountant, food services worker, parks and recreation manager, and construction worker. Each interview lasted approximately 30 to 40 minutes, and many involved telephone interviews because of logistical reasons. However, this did not seem to influence the overall interview in terms of amount, type of detail shared, or length.

We grouped our main findings around 4 central themes that were identified during our analysis of the transcripts. These are (1) the role of a previous negative experience with GA in influencing patient's preference for RA; (2) patient's experience of quicker recovery; (3) greater fear of surgery than of any one particular approach to anesthesia; and (4) impact of physician preferences on patient choices.

In terms of the primary goals of the study, for the majority of patients we interviewed, RA was either well tolerated or even preferred. Some patients were neutral about the procedure (patients 4, 9, 10, and 11); several patients reported that a regional technique facilitated a quicker recovery (patients 2, 7, and 12) or that it was at least better than having a GA (patients 5 and 10) for which they reported nausea, hallucinations, or feeling cognitively impaired. Many patients spontaneously described negative experiences with general anesthesia, although this latter question was not posed by the interviewer. For example, "If I had a choice, I would certainly have a local, yeah. I don't want my head screwed up again. I had a long hangover from it; I almost feel I had some brain damage [from the GA]" (patient 5). Confusion in hospital is a well-known phenomenon for postoperative, elderly patients,^{24,25} and the use of RA could help reduce this adverse effect from occurring after arthroplasty surgery.

Most participants reported quicker recovery and less pain following RA. As one patient noted, "The second time the healing was so much faster" (patient 2). Another reported, "I think the big thing was the recovery, because I came out of the anesthesia, the spinal, much faster" (patient 5). "And I find the day after surgery, to get up, was much, much easier than the first one [with a GA]" (patient 7).

Some patients reported that the surgical process took longer because of RA. One patient described this delay to surgery: "Just the length of time [was different between the two surgeries]. When you go in with the first one, with the complete general, they'd wheel you right into the surgery, put the catheter in, bang, knock you out, you're done. With the other one I was laying on a gurney outside the operating room for about 45 minutes. They gave me the anesthesia in the hallway into my spine, and they waited 45 minutes before that encapsulated all my nerves in my legs" (patient 6).

The use of RA may require additional operating room time per procedure and possibly result in a reduced number of surgeries when operating room time is limited.^{4,26}

In general, patients were more concerned with surgery per se than with one type of anesthesia over another. The following account was typical:

The first one I can say I was very, very nervous. In fact, they almost didn't want to do me because my blood pressure was like 185 or some bloody thing like that. And I said, "No, it's because I'm nervous," you know? Even though my GP had said, "It's carpentry," that's what he said. But anyway, but I was very, very nervous, you know. To live with the idea that somebody's going to cut you open, and they're going to take parts out of you, and they're going to saw and cut and everything else, you know, really upset me. (Patient 1)

Despite their fears, patients deferred to the opinion or advice of their physicians or surgeons in terms of choosing

what type of anesthesia to use. The following quote typifies what patients expressed in terms of wanting the physicians to choose whatever anesthesia they believe is best for the patient. Describing a presurgery conversation with his surgeon, the patient told us “This is when I said, That’s fine, use whatever method you think is better, but I don’t want to hear it” (patient 2). Another patient recalled requesting a GA as he was concerned about being awake during surgery. However, at the prompting of the anesthesiologist the patient agreed to have an RA. As it was described, “This is what they seemed to be liking [the RA], and unless I objected strongly that’s what they’d like to do” (patient 9). One patient said, “They did ask me which one I wanted, but I really wanted to get the GA again. But I say, you know what? I better take the other one” (patient 7). One patient recounted that he originally refused GA for the first surgery but changed his decision at the surgeon’s urging for the second surgery. He said, “Well, I was nervous to have that back one. I thought, you know, ‘I’m going to be a quadriplegic’ or something like that... but the second time around I had the back one” (patient 4).

Patients were also quick to dismiss their own experiences and knowledge in favor of the physicians’ opinion. The patient above who was afraid to have “that back one” dismissed his fears as being “stupid on my part.” Some patients’ fear of waking up during the RA was realized. In the following account, a patient describes waking up several times during his surgery. In this particular instance, he does not mind this experience, saying, “I would have liked to have seen what they were doing” (patient 11). However, his account also underscores some of the power dynamics that exist between surgeons and patients. This patient goes on to say that despite being “into that sort of thing,” he felt “if I do that and it upsets me then, it may disturb the doctor, so I’m not going to look”:

Yeah. I woke up the first time and I could remember hearing *zzzz*zzzz*zzzz*zzzz,* and this is what I heard. They had a blue sheet across like this. And I’m very into that sort of thing. I would have liked to have seen what they were doing. But I thought, you know, if I do that, and it upsets me, then it may disturb the doctor, so I’m not going to look.

It should be noted that one patient did report serious difficulties that arose as a consequence of having a regional block; because he could not feel his legs, he, and the nurses, did not notice that the straps were causing abrasions on his legs. Although this narrative constitutes an outlier in our study, we have recounted it in detail given its significance in terms of the patient’s experience of traumatizing pain.

Anyway, they rolled me out (postsurgery), I guess it was about 6:00 in the evening. Suddenly it became painful. And it’s something that I’d never felt before; it just grabs and just pulls, and, you know, it’s just terrible pain. And I call the nurse, and the nurse comes in, and he said, “Oh, the pain pump only works every 5 minutes.” So I’m in this terrible pain, like, the worst pain I’ve ever had. You know, I’m sweating, I’m shaking—I think I went into shock—and I can’t do anything about it. And I’m watching the clock, so every 5 minutes I hit it again, and it took about 20 minutes before it went away. It was just terrible. At the same time, the leg had been strapped to some device to keep it [still]... as I moved around, I didn’t realize that these straps were chafing. I wore myself raw in two places, and then when I finally came to I started feeling pain down in these spots in my leg and had

no idea what it was. Finally one nurse looked at it and said, “Holy jeez, you’re totally raw down there! Here, let’s move this thing and get your leg straightened away.” So I had that as well, so I had... you know, I still had big strawberries when I went home 4 days later. (Patient 8)

Our team determined that this patient’s negative experience seemed linked to poor pain control after surgery rather than with the RA *per se*. Nevertheless, it is unknown how frequently this experience may occur, and thus, this is therefore an important area for future study.

DISCUSSION

Within the EBM literature, patient preference should be an important part of physician decision making.²⁷ To date, little is known regarding how much medical information patients require or desire to enable informed decision making.²⁸ This is a particularly complex challenge in relation to identifying patient preferences in relation to the use of RA for hip and knee arthroplasty. The patients we interviewed did not emphasize a particular preference for RA or GA unless they had experienced a previous negative experience with GA. Having a previous negative experience with GA was more common than we expected and was strongly associated with a patient’s preference for RA. Although other studies have identified that patients in general view all types of anesthesia as particularly risky,²⁹ our study has identified how significant a previous negative experience with GA can be in influencing patient decision making. One study found that 80% of patients surveyed had undergone a previous anesthetic.⁶ Commenting on this finding, Birnbach³⁰ indicated it would have been helpful to know whether the previous experience was with GA or RA, suggesting that “post-general anesthesia nausea and vomiting would probably persuade most patients to ‘risk’ a spinal.” Our findings supported this hypothesis.

Aside from patients who had previous negative experiences with GA, the participants in our study seemed to express equal fear of undergoing any type of anesthesia or of the surgery itself. Although our research supported other findings that patients had fears of becoming paralyzed or waking up during surgery,^{5,6} patients had dismissed this fear as being irrational when their physicians advocated for the use of RA.

Patients did report that one of their greatest fears was of being aware or “hearing” something during the procedure, and some patients in our study did in fact “wake up” during surgery under RA. This underscores, from a patient’s perspective, the importance of appropriate sedation while undergoing surgery under RA. The use of deep sedation during RA procedures is controversial, and the American Society of Regional Anesthesia has recommended its avoidance because of the risk of masking patient response to pain that may be a warning of intraneural injection.³¹ A recent review of the literature on the use of GA or deep sedation during RA concluded that this area is “controversial, complicated, and decisions must be made in the absence of traditional forms of EBM.”³¹ As the study authors note, prospective randomized controlled trials have not been conducted, nor likely ever will be, given how rare anesthesia-related nerve injury is. However, they note that proponents of anesthesia or heavy sedation during regional blocks report that these methods “increase patient acceptance.”³¹ Our study seems to indicate that patients are concerned about remaining awake during surgery and is the first qualitative study to report on patient preferences in this area.

Our study had several strengths. First, it was novel in that we interviewed the same patient regarding their experiences of both RA and GA on separate occasions. This facilitated the

comparison of RA and GA from each individual's perspectives versus a comparison across 2 separate populations. It is possible that the duration of time between RA and GA may have influenced patients' recall; however, the GA was usually the earliest, and therefore any tendency to forget negative experiences should have been more so with the GA. In our study, the experience with RA was with the second replacement, so patients may have been less frightened and more prepared for surgery and recovery the second time.

Some caution should be exercised in the interpretation of our findings. Our study did not attempt to be representative but instead sought in-depth rich description from a select group of patients. Future studies might address sex, ethnic identity, and socioeconomic status as important aspects of the patient experience. In addition, in a rapidly changing clinical environment, the differences in organization of care between the 2 surgeries may have affected our results. Our team is currently undertaking a secondary analysis of this data set that focuses on the organizational issues identified as important by patients beyond the type of anesthesia used during surgery. We have organized these experiences into the following themes organized along the patient journey: (1) presurgery and postsurgery pain management; (2) access to surgery, including wait times to surgery; (3) reduced length of stay and less in-hospital rehabilitation; and (4) recovery.

In summary, our study underscores both the importance and the complexity of patient experiences in the implementation of best practice care. Although there is an assumption in the literature that patients are wary of RA, we found upon closer examination that patients tended to be fearful of any form of anesthesia and of surgery in general. Because of this, and possibly other unknown factors, the participants in this study reported being strongly influenced by surgeons and anesthesiologists in their choice of anesthesia for hip and knee arthroplasty. Given the proven benefits of RA for hip and knee arthroplasty, this highlights the importance of strong support at the physician and hospital level for RA for hip and knee arthroplasty.

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APPENDIX: SEMISTRUCTURED INTERVIEW GUIDE

Background Information

Thank person for participating, go over consent form and have them verbally agree to participate, and explain process, how confidentiality and anonymity will be protected, and so on.

Warm up and establish rapport.

- It would be nice if you could let me know a little bit about yourself. How long have you...
- Let me begin by asking you to describe for me what led to your first surgery? (Probes: When was it? Do you recall who you first saw, ie, family physician? What led to your referral at the Holland Center? In general, what stands out for you about that time?)

First surgery

- How did you originally feel about having surgery?
 - What were your main concerns about having surgery?
 - What do you recall about meeting the anesthesiologist?
 - What do you remember about your recovery?
 - What did you do to manage your pain after surgery?
-

Second surgery

- How did you originally feel about having a second surgery?
 - What were your main concerns about having surgery?
 - What do you recall about meeting the anesthesiologist?
 - What do you remember about your recovery?
 - What did you do to manage your pain after surgery?
-

Comparison of both surgeries

- Do you recall any differences between your 2 surgeries?
 - If yes, what do you think accounts for those differences?
 - Was one of the surgeries easier for you than the other? Why or why not?
-

Understanding of anesthesia and pain

- What were your expectations about pain following surgery? Do you recall what you were told about what to expect after either or both of your surgeries in regard to pain and pain relief?
 - At what points in your care did someone speak to you about how to control your pain? Do you remember who talked to you?
 - Was pain control worse/better than you expected after your first/second surgery?
 - How was your recovery/rehabilitation after the surgery? What do you think were the main factors in your recovery?
-

Cool-down/wrap-up questions

- Is there anything else I haven't asked you about that you'd like to add?
 - The responses you have provided may stimulate some additional questions or need for further clarification. If so, may we contact you in the future?
-