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Perioperative Concerns and Complaints of Patients Undergoing Total Hip Arthroplasty

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Background: Preoperative concerns of patients undergoing total hip arthroplasty (THA) and their complaints during the initial postoperative period are not well investigated. We evaluated preoperative concerns of patients and patient-perceived problems during the operation and initial 5 days after the operation.

Methods: One hundred and thirty-two patients, who underwent primary THA at a tertiary referral hospital, were surveyed using a questionnaire and a face-to-face interview 1 day before the operation, operation day, and postoperative days 1, 2, 3, and 4. The severity of pain was assessed daily using a visual analog scale.

Results: The most common preoperative concern was the severity of pain after the surgery (65.2%), followed by the need of transfusion (34.8%) and postoperative rehabilitation (32.6%). Among 29 patients who could recall the experience during the operation, 12 (41.4%) suffered from shoulder pain on the contralateral side, and 6 (20.7%) answered that hammering sound had been annoying. After returning to the ward, 29 patients (22.0%) suffered from nausea, 8 (6.1%) complained of back pain, and 7 (5.3%) had ipsilateral knee pain. On postoperative day 1, 7 patients (5.3%) had persistent back pain, 8 (6.1%) had headache, and 5 (3.8%) suffered from nausea. On postoperative day 2, nine patients (6.8%) complained of radiating pain due to aggravation of preexisting spinal stenosis, 7 (5.3%) complained of weakness of the hip flexor due to periarticular injection of ropivacaine during the operation, and 5 (3.8%) had dressing-related skin problem at the wound. On postoperative days 3 and 4, patients had no problem other than hip pain. The mean pain score was the highest (3.1 ± 1.0) on postoperative day 1.

Conclusions: The results of this study might provide information needed to solve problems and improve satisfaction of patients undergoing THA.

Keywords: *Hip, Arthroplasty, Communication*

Total hip arthroplasty (THA) is one of the most successful procedures for treating end-stage arthritis of the hip.[1-4] Even with the advances of surgical techniques and pain management, there are still problems, which distress patients during the perioperative period.[4] The high cost of hospitalization and bundled payment system have shortened the length of hospital stay after THA, and patients suffer from acute postoperative problems after discharge. Although several studies have reported patients' concerns prior to undergoing THA,[5,6] there have been no study evaluating patient-

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perceived complaints during the operation and the initial postoperative period.

In South Korea, almost all individuals are covered by health care system of the National Health Insurance Service, and the current health care system allows THA patients to be hospitalized for one week.[7,8] In the United States, most patients stay in the hospital one or two nights after THA. Some patients have the same day discharge and return home after an outpatient procedure.[9] It is difficult to figure out postoperative concerns of THA patients during the first week after the operation. Thus, we conducted a survey to investigate concerns and complaints of THA patients before operation, during the operation, and acute postoperative period.

METHODS

The Institutional Review Board of Seoul National University Bundang Hospital approved this retrospective longitudinal study conducted in THA patients during perioperative admission period and waived the requirement for obtaining informed consent from patients (No. B-2102-664-115). The authors certify that we obtained all appropriate patient consent forms. The patients gave their consent for images and other clinical information to be reported in the journal. The patients understood that their names and initials would not be published and due efforts would be made to conceal their identity, but anonymity could be guaranteed.

Patients

Patients who underwent primary elective THA from August 2019 to February 2020 at our institution were eligible for this study. We excluded patients who had previous hip surgery, those who were operated under general anesthesia, those who underwent emergency operation, and those who had bilateral THA. One hundred and thirty-two patients (83 men and 49 women) who met the inclusion/exclusion criteria were the participants of this survey. Their mean age was 51.7 years (range, 22–81 years), and the mean body mass index was 24.4 kg/m^2 (range, 17.6–34.3 kg/m^2). Diagnoses for THA were femoral head osteonecrosis in 62 patients, secondary arthritis due to hip dysplasia in 34, primary osteoarthritis in 26, and others in 10.

Preoperative Explanation

Once THA was scheduled, a surgeon explained the implant type, bearing surface, expected longevity of THA, incision scars, operation time, type of anesthesia, postoperative rehabilitation, complications of THA, duration of hospital stay, expected cost, time of returning to work and recreational sports activities, and return to sexual activity[10] at the outpatient clinic. A physician's assistant explained preoperative preparations, admission process, postoperative rehabilitation, and wound care after discharge. A booklet and online video (https://hichart.tv/fCCL) for detailed information were provided to patients.

The patients were admitted to the ward one day before the operation. After re-explaining the procedure and possible complications, written informed consent for the operation was obtained. An anesthesiologist visited the patients and explained the process of anesthesia.

Anesthesia, Arthroplasty, Rehabilitation, and Follow-up Evaluations

Spinal anesthesia was used in all 132 patients. After the anesthesia, the patients were sedated, if they wanted. One gram of tranexamic acid was intravenously injected prior to incision. Prophylactic antibiotic (cefazolin) was administered prior to incision and during 24 hours after the arthroplasty.

All THAs were done in the lateral decubitus position using a posterolateral approach by two senior surgeons (KHK and YKL). Cementless hemispherical titanium cup (Mirabo; Corentec, Cheonan, Korea), a tapered titanium stem (M Stem, Corentec), and ceramic-on-ceramic bearing (Biolox Delta; CeramTec, Plochingen, Germany) were used in all hips. A 100-mL mixture for periarticular injection (300 mg of ropivacaine [40 mL], 10 mg of morphine sulfate [10 mL], 30 mg of ketorolac [1 mL], 300 mg of 1 : 1,000 epinephrine [0.3 mL], 1,000 mg of cefmetazole [10 mL], and normal saline [38.7 mL]) was prepared in two 50 mL syringes. Before the insertion of the prostheses, 50 mL in the first syringe was injected into the capsule. After the capsule closure, the remaining 50 mL in the second syringe was infiltrated into the fascia and soft tissue.[11] No drainage was inserted.

After operation, patient-controlled analgesia was provided using an electronically controlled infusion pump. At the recovery room, the bladder volume was routinely checked, and urinary catheterization was done when the bladder volume was > 400 mL. Intermittent pneumatic compression was routinely applied to prevent deep vein thrombosis. No medical thromboprophylaxis was done. One day after the operation, the patients started wheelchair ambulation. Two days after the operation, the patients started walking with an aid of two crutches. On postoperative day 3 or 4, all patients were routinely assessed by duplex ultrasonography to detect deep vein thrombosis. The patients were discharged on postoperative day 5.

Survey

Survey was done in direct face-to-face interviews by two clinical fellows (JTK and JWP), who did not participate in the surgery. They visited the patients every day during hospitalization to ask their concerns and complaints of the day. Preoperative concerns of the patients were surveyed using a questionnaire (Table 1), which was a modification of a previous questionnaire assessing preoperative concerns of hip fracture patients.[12] For convenience purposes, the length of the original questionnaire was shortened by excluding questions that were not relevant to elective THA. The patients were allowed to choose multiple items. Intra- and postoperative complaints were asked using open-ended questions. The severity of pain was assessed daily using a visual analog scale (VAS). We used descriptive statistics with mean and standard deviation.

Table 1. Questionnaire for Preoperative Concerns

What are you worried about? You can choose multiple items.
1. Pain during surgery
2. Pain after surgery
3. Risk of infection after surgery
4. Scar after surgery
5. Need of transfusion
6. Postoperative rehabilitation: ambulation and exercise
7. Whether I can get effective physical therapy after surgery
8. Too short hospitalization period
9. When I can take care of myself without an assistive caregiver
10. Medical expenses
11. Others: _____
12. I have no concern

Table 2. Preoperative Concerns of Patients Undergoing Total Hip Arthroplasty

Concern	Frequency (%)
Pain after surgery	65.2
Need of transfusion	34.8
Postoperative rehabilitation: ambulation and exercise	32.6
Too short hospitalization period	27.3
Medical expenses	8.3
When I can take a shower after surgery	6.1
Risk of dislocation after surgery	3.8
Risk of infection after surgery	2.3

RESULTS

Concerns before Surgery

The most common concern was the severity of pain after the surgery (86 patients, 65.2%). Forty-six patients (34.8%) were worried about the need of transfusion, 43 (32.6%) were concerned about postoperative rehabilitation, and 36 (27.3%) were worried that the duration of hospitalization was too short (Table 2). Eighteen patients answered that they did not have any worries.

Complaints during Surgery

One hundred and twenty-seven patients asked for sedation during the operation. Among them, 103 patients were unable to recall their experience during the operation due to sedation, and the remaining 29 could recall. Twelve patients (41.4%, 12/29) suffered from shoulder pain on the contralateral side as they had been in the lateral decubitus position during the surgery. Six patients (20.7%, 6/29) answered that hammering sound had been annoying (Table 3).

Table 3. Intraoperative and Postoperative Complaints of Patients Undergoing Total Hip Arthroplasty

Variable	Complaint (%)
Intraoperative	Shoulder pain (41.4)*
	Hammering sound (20.7)*
Immediately after surgery	Nausea (22.0)
	Transient voiding difficulty (8.3)
	Back pain (6.1)
	Ipsilateral medial knee pain (5.3)
POD 1	Headache (6.1)
	Back pain (5.3)
	Nausea (3.8)
POD 2	Radiating pain due to aggravation of spinal stenosis (6.8)
	Weakness of hip flexor (5.3)
	Dressing-related skin problem (3.8)

POD: postoperative day.
*Only 29 patients could recall the experience in the operation room.

Complaints on the Operation Day

After returning to the ward, 29 patients (22.0%) suffered from nausea, and 5 of them vomited. Eleven patients (37.9%) had transient voiding difficulty, which improved without medication. Eight patients (6.1%) complained of back pain, probably due to the prolonged lateral decubitus position during the operation. Seven patients (5.3%) had ipsilateral medial knee pain, probably due to stretching of the medial collateral ligament during forceful dislocation of the hip joint (Table 3). The mean VAS score was 2.3 ± 0.9.

Complaints on Postoperative Day 1

Seven (5.3%, 7/132) of the 8 patients who complained of back pain on the operation day had persistent back pain. Eight patients (6.1%) had headache and 5 patients (3.8%) suffered from nausea. The headache and nausea disappeared after cessation of patient-controlled analgesia infusion (Table 3). The mean VAS score was 3.1 ± 1.0.

Complaints on Postoperative Day 2

Nine patients (6.8%) complained of radiating pain. These patients had preexisting spinal stenosis, and their symptom was aggravated after the operation. Seven patients (5.3%) complained of weakness of the hip flexor. The weakness was transient, which improved during the admission period. It seemed to have been caused by the periarticular injection of ropivacaine during the operation. Five patients (3.8%) had dressing-related skin problem at the wound site due to reaction to povidone iodine or adhesive plaster (Table 3). The mean VAS score was 2.8 ± 0.8.

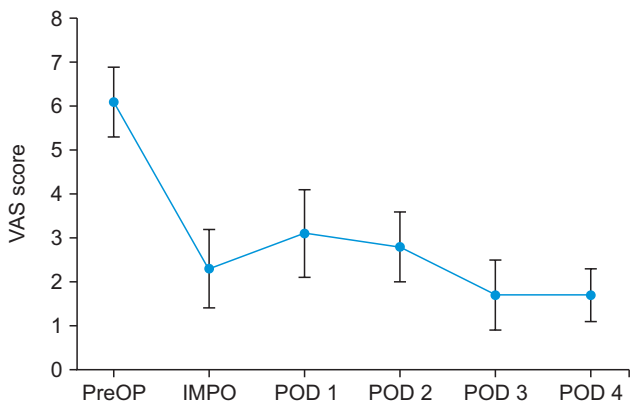

Fig. 1. The severity of pain assessed using a visual analog scale (VAS). PreOP: preoperative period, IMPO: immediate postoperative period, POD: postoperative day.

Complaints on Postoperative Days 3 and 4

No other problem than hip pain was raised by the patients. The mean VAS score was 1.7 ± 0.8 on the postoperative day 3 and 1.7 ± 0.6 on the day 4 (Fig. 1).

DISCUSSION

In our study, the most common concern of the THA patients before operation was the severity of postoperative pain (65.2%): 41.4% of the patients suffered from pain on the contralateral shoulder during the operation, 6.8% had aggravation of spinal stenosis symptoms, and the postoperative pain was most severe on the postoperative day 1. Evaluation of the patient-perceived problems is important to improve patients' satisfaction. Previously, several studies reported preoperative concerns of THA patients.[5,6] However, we could not find any study reporting their complaints during the operation and acute postoperative period.

Moran et al.[5] conducted a cross-sectional study of 370 patients to investigate the preoperative concerns of patients undergoing total knee or hip arthroplasty. In their study, the greatest concern of the patients was cancellation of the surgery, followed by failure of the surgery to reduce pain, loss of a limb, and joint infection. Trousdale et al.[6] examined the patients' concerns prior to surgery on 266 patients undergoing primary total hip or total knee arthroplasty. Preoperative concerns of their patients were pain immediately after the surgery, length of recovery, ability to walk as much as they wish, ability to return to recreational activities, ability to go up and down stairs, and risk of getting acquired immunodeficiency syndrome from a transfusion. Those two studies used questionnaires, which might be associated with a priming effect.[13] Primed items might have influenced the response of the patients. Thus, we used open questioning during the personal face-to-face interviews.

A previous study surveyed preoperative concerns of elderly (older than 65 years) hip fracture patients.[12] In the study, the main concerns of the patients were falling and refractures. In our study, patients were younger (mean age, 51.7 years) and the common reasons were femoral head osteonecrosis and osteoarthritis of the hip. They were informed about the process of arthroplasty and postoperative recovery prior to surgery. The common concerns were the severity of pain after the surgery (65.2%), the need of transfusion (34.8%), postoperative rehabilitation (32.6%), and short duration of hospitalization (27.3%).

We note several limitations. Our study was done at one tertiary referral hospital in South Korea. The mean age

of our patients was only 51.7 years, their mean body mass index was low (24.4 kg/m^2), and the most common diagnosis for THA was femoral head osteonecrosis (47.0%). Educational materials and detailed explanations were given to patients before the operation. We used multimodal pain management during the admission period. Second, all THAs were done in the lateral decubitus position using one posterior approach, and we used single design of cementless total hip prosthesis. Our results might not be generalizable to other regions, other ethnics, and THAs using other implant designs.

Our study might provide information needed for the preoperative counseling and perioperative management of THA patients. More detailed information about the severity of postoperative pain should be given to patients before operation. During the surgery, padding should be put on the contralateral shoulder to reduce pain, and the hip should be dislocated gently and cautiously to avoid injury to the medial collateral ligament. Aggressive pain management is necessary on the postoperative day 1.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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