



Concerns for Older Adult Patients with Acute Hip Fracture

Jun-Il Yoo¹, Young-Kyun Lee², Kyung-Hoi Koo², Young-Jin Park¹, and Yong-Chan Ha³

¹Department of Orthopaedic Surgery, Gyeongsang National University Hospital, Jinju;

²Department of Orthopaedic Surgery, Seoul National University Bundang Hospital, Sunnam;

³Department of Orthopaedic Surgery, Chung-Ang University College of Medicine, Seoul, Korea.

Purpose: The purpose of this study was to identify concerns among older adult patients with acute hip fracture.

Materials and Methods: This study was performed with 152 consecutive patients with hip fracture. Details were obtained on perioperative concerns about hip fracture using a questionnaire that was specifically designed for this study and was administered face to face upon admission. The study inclusion criteria were age older than 65 years and having experienced femur neck, intertrochanteric, or subtrochanteric fracture. The exclusion criteria were not understanding the study purpose, having difficulty communicating, or refusing to participate.

Results: Older adult patients with acute hip fracture expressed concerns regarding excessive pain, medical staff, postoperative recovery, rehabilitation, and hospital expenses. In addition, fear of falling from the bed and anxiety regarding re-fracture were the patients' most significant concerns.

Conclusion: Older adult patients reported fear of falling from bed and re-fracture as primary concerns. To overcome these concerns, fracture liaison services to prevent re-fracture should be introduced and enforced.

Key Words: Concerns, fall, hip fractures, needs

INTRODUCTION

Hip fractures are increasing rapidly among older adults of increasing age. Hip fractures in older adults increase morbidity and mortality, resulting in medical and socioeconomic burden.^{1,2} In addition, hip fractures cause patient excessive pain, depression, and postoperative anxiety.^{3,4}

To date, most studies regarding older adult patients with hip fracture have focused on the surgeon's point of view, such as improving surgical techniques and adjusting medical conditions for surgery. While waiting for surgery, older adult patients

with hip fractures are usually under physical and mental stress; however, these factors are frequently underestimated. Although preoperative anxiety and uncertainty following hip fracture can induce serious medical complications, such as delirium, and may result in negative postoperative outcomes, few studies have reported on the concerns and unmet needs of older adult patients before surgery. Therefore, doctors and other medical staff need better understanding of these patients' needs and concerns before surgery.^{5,6}

Basic data on the concerns of patients with acute hip fractures are necessary to establish appropriate management of these patients, and thus, we designed a prospective descriptive study to identify concerns among older adult patients with acute hip fracture.

MATERIALS AND METHODS

Subjects

We conducted this study using a questionnaire administered during face-to-face interviews. The independent ethics com-

Received: July 9, 2018 **Revised:** September 4, 2018

Accepted: October 2, 2018

Corresponding author: Yong-Chan Ha, MD, Department of Orthopaedic Surgery, Chung-Ang University College of Medicine, 102 Heukseok-ro, Dongjak-gu, Seoul 06973, Korea.

Tel: 82-2-6299-1577, Fax: 82-2-822-1710, E-mail: hayongch@naver.com

•The authors have no financial conflicts of interest.

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mittee of Chung-Ang University Hospital approved the study (IRB NO; 1711-008-16117). Written informed consent was sought and received from all participants. We performed a prospective study of 152 patients who underwent surgery under general anesthesia or spinal anesthesia for hip fractures at our hospital from September 2016 to May 2017. We confirmed the schedule of operation on the day before surgery and administered the questionnaires in the patients' wards. The inclusion criteria were age over 65 years and having experienced a femur neck, intertrochanteric, or subtrochanteric fracture. The exclusion criteria were not understanding the study purpose, unable to communicate due to dementia, or refusing to participate.

Preliminary survey

Before we began a pilot study, we held a meeting with 15 orthopedic surgeons, two physical assistants, and one research worker to determine which 65 questions to include in the questionnaire based on preliminary research data. The questionnaire regarding preoperative concerns consisted of 64 items and was derived and modified partially from a pre-existing questionnaire used for research on total joint arthroplasty (Supplementary Material 1, only online).^{7,8} These questions were listed in order of frequency by consensus among 11 experts. The study was performed based on 25 items in order of frequency.

We administered the initial survey with 65 questions, including open-ended questions, to 30 patients who were scheduled for hip fracture surgery to determine the final questionnaire composition. The patients for the pilot study were over the age of 65 years, with an average age of 74.0 years (range: 65–94 years). The mean age of the men was 73.3 years, and that for the women was 74.3 years. Illiterate patients were asked to complete the survey with the help of their caregivers. We determined 25 items based on frequency and reallocated them into four categories (Supplementary Material 2, only online).

Patient demographic backgrounds

The demographic data included gender, age, occupation, religion, education level (no schooling, elementary school, middle school, high school, undergraduate, graduate), monthly income (0.5–1 million won, 1–2 million won, 2–3 million won, over 3 million won), and previous experience with surgery.

Questions related to hip fracture surgery pain

These questions addressed intraoperative and persistent postoperative pain following hip fracture surgery.

Questions related to hospital and doctor

The topics of these questions encompassed 1) length of hospital stay, 2) need for blood transfusion, 3) risk of death after surgery, 4) anxiety about nursing care, 5) anxiety about preoperative examination and investigation, 6) anxiety about fall risk, 7) cleanliness of hospital facilities, and 8) concern about

the proficiency of the doctors.

Questions related to recovery and rehabilitation after hip fracture surgery

These questions assessed 1) postoperative recovery, 2) recovery of walking, 3) presence or absence of stairs, 4) return to work and daily life, 5) walking aid, 6) postoperative physical therapy, 7) effectiveness of physical therapy, 8) activities of daily living, 9) postoperative re-fracture, 10) postoperative infection, 11) need for reoperation, 12) change in leg length, and 13) wound healing and scarring.

Questions related to hospital costs

These questions were related to the family financial burden to pay medical expenses.

Statistical analysis

Descriptive statistics and frequency analysis were performed using Microsoft Excel 2010 (Microsoft, Redmond, WA, USA). Patient answers were classified into four categories for frequency analysis. Only patients with moderately and severely responses were included in the frequency analysis.

RESULTS

The mean age of the subjects was 78.2 years (range: 65–99 years old). The mean age of the men was 73.2 years, and that for women was 80.3 years. Demographic characteristics are described in Table 1. Regarding hip surgery pain, 65.8% of patients were concerned about preoperative and postoperative pain, and 51.3% were concerned about persistent postoperative pain. Regarding hospital facilities and medical staff, 46.1% of patients were concerned about the hospitalization period, and 36.2% were concerned about the possibility of transfusion. Before surgery, 37.5% of patients were concerned about mortality; 25.0% were concerned about preoperative and postoperative nursing; 17.1% were concerned about preoperative exams; 58.6% were concerned about possible perioperative falls from their bed; 7.9% were concerned about the sanitation of the hospital; and 14.5% were concerned about the surgeon's skill and mastery (Table 2). In terms of recovery after hip surgery, 52.0% of patients were concerned about recovery period after surgery; 63.2% of patients were concerned about restoration of walking; 60.5% were concerned about climbing up and down stairs; 52.6% were concerned about returning to work and daily life activities; 50.7% were concerned about having to use walking aids; 37.5% were concerned about the postoperative rehabilitation methods; 34.9% were concerned about useful rehabilitation; 52.0% were concerned about their possibilities for self-care; 72.4% were concerned about re-fracture; 52.0% were concerned about postoperative infection; 50.7% were concerned about need for reoperation; 27.6% were concerned

Table 1. Patient Demographic Characteristics (n=152)

Variable	Data
Age (yr)	78.23±12.20
Gender	
Men	46 (30.3)
Women	106 (69.7)
Employed (yes/no)	21 (13.8)/131 (86.2)
Religion (yes/no)	103 (67.8)/49 (32.2)
Marital status (yes/no)	9 (6)/143 (94)
Education level	
No schooling	20 (13.2)
Elementary school	39 (25.7)
Middle school	33 (21.7)
High school	31 (20.4)
Undergraduate	17 (11.2)
Graduate	12 (7.9)
Monthly income	
0.5–1 million won	76 (50)
1–2 million won	35 (23)
2–3 million won	19 (12.5)
Over 3 million won	22 (14.5)
Previous experience with surgery (yes/no)	99 (65.1)/53(34.9)

Data are presented as mean±SD or numbers (%).

Table 2. Preoperative Concerns Related to Hospital and Doctor

Concern	n (%)
Hospital stay	70/152 (46.1)
Blood transfusion	55/152 (36.2)
Perioperative mortality	57/152 (37.5)
Nursing care	38/152 (25.0)
Preoperative assessment	26/152 (17.1)
Fall risk	89/152 (58.6)
Hospital cleanliness	12/152 (7.9)
Experienced doctor	22/152 (14.5)

about changes in leg length; and 23.7% were concerned wound restoration and scarring (Table 3).

Analysis of concerns among hip fracture patients

In our survey of older adult patients who were undergoing surgery for hip fracture repair, 65.8% of patients were concerned about pain both before and after the operation, and 51.3% were concerned about pain after the operation. Regarding the hospital and medical staff, 58.6% of patients were worried about the risk of falls; 46.1% were worried about the hospitalization period; 37.5% were worried about death; and 36.2% were worried about the possibility of transfusion.

Regarding postoperative recovery and rehabilitation, 72.4% of the older adult patients were concerned about postoperative re-fracture; 63.2% were worried about restored walking motion; 52.6% were concerned about returning to work and daily life activities; 52.0% were concerned about their possi-

Table 3. Preoperative Concerns Related to Recovery and Rehabilitation after Hip Fracture Surgery

Concern	n (%)
Recovery period after surgery	79/152 (52.0)
Recovery of walking function	96/152 (63.2)
Up and down stairs	92/152 (60.5)
Return to work and daily life	80/152 (52.6)
Use of walking aid	77/152 (50.7)
Postoperative physical therapy	57/152 (37.5)
Effectiveness of physical therapy	53/152 (34.9)
Activities of daily life	79/152 (52.0)
Postoperative re-fracture	110/152 (72.4)
Postoperative infection	79/152 (52.0)
Need for reoperation	77/152 (50.7)
Change in leg length	42/152 (27.6)
Scar recovery	36/152 (23.7)

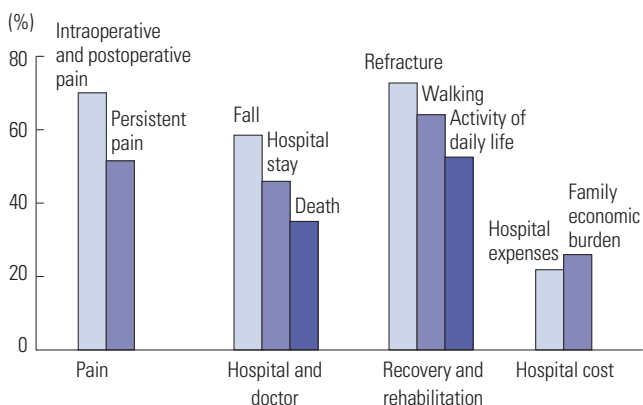


Fig. 1. Frequency analysis of concerns among patients with hip fracture.

bilities for self care and risk of postoperative infection; and 50.7% were concerned about the use of ambulatory aids. Financially, 22.4% of the patients were concerned about paying their medical expenses, and 25.7% were concerned about the economic burden on their families (Fig. 1).

DISCUSSION

Evaluating the concerns and unmet needs of older adult patients with acute hip fractures is important to establishing appropriate management. In this study, we found that excessive pain, hospital and medical staff, postoperative recovery, rehabilitation, and hospital expenses are the most common concerns among older adult patients in Korea. Fear of falling from a bed and anxiety about re-fracture were the most significant concerns.

In this study, among 152 subjects, more than 50% each were concerned about both pre- and postoperative pain (65.8%), and postoperative pain (51.3%). The hip is the largest joint in the body, and hip joint surgery is the most serious orthopedic operation: it can cause mental and physical stress to patients.

Additionally, most patients who undergo this surgery take it seriously and feel anxiety about possible pain before and after the surgery.⁹ After the surgery, pain causes tissue damage and leads to psychological dependence, fear, helplessness, sleep disturbances, and anxiety. Especially in the case of older patients, postoperative complications, such as coma and delirium, can be associated with inappropriate pain control, and therefore, proper management of postoperative pain is very important.^{10,11}

After surgery in older adult patients, inappropriate pain control can lead to delirium, dramatically decrease cognitive function, and delay recovery, leading to socioeconomic losses. Kang, et al.¹² performed a randomized controlled trial with 82 patients with hip fractures divided into those who received conventional pain control and those who received multiple pain control. In the multiple pain control group, the duration of pain relief, frequency of the use of narcotic analgesics, and postoperative satisfaction were higher. Based on the results of this study, we believe that additional clinical studies on prognoses and interventions regarding pain management before and after hip fracture surgery are required.

With regard to the hospital and other medical staff, most of the 152 subjects (58.6%) were concerned about the risk of falling from a bed. Falls are the most important cause of physical impairment in older adults, and the incidence and prevalence thereof increase with age. Eventually, falls in older adults not only directly cause injury but also increase functional dependence, decrease quality of life, decrease mobility due to fear of falling, and increase the risk of death.^{13,14} Falls increase the possibility of admission to long-term care facilities and increase the burden of medical expenses by causing fractures and cerebral hemorrhage.¹⁵

An experience of falling has been shown to be associated with anxiety and fear of falling again, and it is known that fear affects body function. Falls lead to dependence and social weakness due to lack of physical activity, as well as socioeconomic losses, and they eventually affect the quality of life of the elderly: older patients who have fallen tend to limit their activities for fear of falling again.^{16,17} Yoo¹⁸ investigated the effects of fall experience on physical function among 301 older adults aged 65 years or older who had experienced falls and found anxiety caused by falling and significant reduction in the ability to perform daily activities. Future research should focus on prevention and intervention studies to resolve patient anxiety about falling, and a hospital guidebook on falls should be prepared for and distributed to older adults.

Of the 152 patients in this study, 72.4% were concerned about postoperative recovery, rehabilitation, and re-fracture; 63.2% were concerned about recovery of walking; and 52.6% were concerned about return to work and daily life activities. Kornfield, et al.¹⁹ reported that anxiety about re-fracture is highly associated with post-traumatic stress disorder and that hip fracture in older adults causes great psychological and physical

stress and increased mortality and morbidity. In the future, based on the results of this and other studies, it is necessary to establish protocols for preventing re-fracture and interventions to relieve the stress caused by hip fracture in the elderly.

Among the total 152 subjects, roughly the same percentages of patients reported concerns about hospital expenses and economic burden on their families, 22.4% and 25.7%, respectively. Older patients with hip fractures are less able to maintain their independence because of their poor physical function; therefore, dependence on others inevitably increases, along with care needs, such that caregivers face increased labor and financial burden. Therefore, it is necessary to enact national social and economic policies that accommodate the needs of family caregivers to prevent economic stress and family collapse caused by supporting older adult patients with fractures.²⁰⁻²² If policies do not focus on preventing osteoporotic fractures in older adults, it may be necessary to improve awareness through social campaigns promoting that falls are a disease that can increase burden on family members, including the costs for medications, surgery, and treatment.

This study has several limitations. First, we only included a small number of tertiary hospital patients, and therefore, our findings might not reflect the populations of other health care institutions. Second, because the conditions of the patients before surgery were different, there was a high degree of heterogeneity in the degrees and types of anxiety. Third, we used a closed questionnaire developed through a preliminary study, and this could have led to investigator bias. Fourth, no validation study was conducted on questionnaires. Based on the results of this study, questionnaires will be validated in Korean hospitals treating hip fracture, including our researchers. Finally, the degree of concern was not considered in this study. Future research should explore the relationship between the degree of concern and the prognosis of the patient. In addition, patient concerns considerably depend on a doctor's counseling ability. Therefore, further study will be needed to investigate the effects of intervention on patient education and of counseling on patient concerns.

Nevertheless, following this prospective descriptive study, we found that older adult patients with acute hip fracture express concerns regarding excessive pain, hospital and medical staff, postoperative recovery, rehabilitation, and hospital expenses, with their greatest concern being the fear of re-fracture. To overcome these concerns, fracture liaison services for preventing re-fracture should be introduced and enforced.

ACKNOWLEDGEMENTS

This research was supported by a grant from the Korea Health Technology R&D Project through the Korea Health Industry Development Institute (KHIDI), funded by the Ministry of Health & Welfare, Republic of Korea (grant number: HC15C1189).

ORCID

Yong-Chan Ha <https://orcid.org/0000-0002-6249-0581>

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