

What Do the Patients Want and Worry in Korean Patients Who Undergo Arthroscopic Rotator Cuff Surgery?

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Background: To specify what patients want and worry preoperatively is important in orthopedic practice. The aim of the current study was to analyze the patient characteristics of rotator cuff disease in Korean population who were willing to undergo arthroscopic surgery, and to evaluate the differences in expectations and concerns by age and gender.

Methods: We prospectively enrolled 303 patients who underwent rotator cuff surgery between April 2004 and August 2008. Three questionnaires were completed before surgery: the first one addressing preoperative patient's expectation, the second one focusing on concerns by covering 64 items using a visual analogue scale, and the third one evaluating patient's demographic characteristics. The characteristics of preoperative expectation, concern, and demographic data were evaluated according to gender and age group.

Results: Female patients had lower level of sports activity ($p = 0.007$) and lower levels of information ($p = 0.028$). Gender specific worries are about a caregiver during hospital stay, operating on the working side, fear about ugly scars, postoperative pain, applying makeup or combing hair. The older group responded that they can't be willing to change activities of daily living ($p = 0.001$), are not living with a spouse ($p = 0.002$), had previous shoulder operation history ($p = 0.008$), and had a lower level of information ($p = 0.007$). They especially worried about medical bills, worried about the physician being too young and inexperienced, postoperative pain, loss of arm function, and hospital food.

Conclusions: Our data showed what Korean patients wanted and were concerned about prior to rotator cuff surgery. This can empower patients to formulate realistic expectations and make informed decisions. We feel that we can achieve higher levels of postoperative satisfaction by analyzing expectations and concerns in depth and addressing these proactively.

Keywords: *Expectation, Concern, Gender, Age, Rotator cuff disorders*

Rotator cuff surgery is an increasingly performed surgery in industrialized countries. There have been remarkable

recent developments in diagnosis, evaluation and surgical technique. Outcomes of rotator cuff surgery still have some limitations and patients occasionally have some dissatisfaction. In addition, there is less consideration of patient based thinking. There is evidence that patient preoperative expectations and concerns are strongly correlated with postoperative outcomes.¹⁻³⁾ Therefore, what patients want and fear during rotator cuff surgery is a crucial issue, and preoperative counseling based on patient thinking is very important for good postoperative results and patient

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satisfaction.⁴⁻⁶⁾

Several studies have described the characteristics of rotator cuff surgery patients in Western countries.^{5,7,8)} But to our knowledge, no research has provided an integrated interpretation regarding the patient characteristics of the Korean population. The aim of this study was to analyze the patient characteristics of rotator cuff disease in a Korean population, and evaluation the difference by age and gender.

METHODS

We carried out a prospective study of patients undergoing arthroscopic rotator cuff surgery at the corresponding author's hospital between April 2004 and August 2008. Three hundred and three patients completed our preoperative questionnaires regarding their expectations, concerns, and demographic data. The study was approved by the Institutional Review Board of the hospital, and informed consent was obtained from all the patients.

The average age (and standard deviation) at the time of surgery was 58.8 ± 9.3 years (range, 26 to 80 years). One hundred forty patients (46.2%) were male, and 218 patients (71.9%) were older than 65 years. One hundred eighty six patients (61.4%) underwent surgery on the dominant shoulder. Twenty two (7.3%) of the tears were small (< 1 cm), 123 (40.6%) were medium (≥ 1 cm but < 3 cm), 34 (11.2%) were large (≥ 3 cm but < 5 cm), and 68 (22.4%) were massive (≥ 5 cm), and 56 (18.5%) of the tears were partial thickness tear.⁹⁾ Associated disorders consisted of the following: 74 cases of superior labral anterior-posterior (SLAP), 103 cases of biceps disorders (with 90 partial and 13 with complete tear), and 27 cases of acromioclavicular arthritis.

All patients were prospectively studied by completing questionnaires with regard to their expectations, concerns and demographic data administered by a blinded independent researcher.

Quantification of the 7 items of expectations was based on the scoring system derived from a previous study:⁴⁾ 1) relief from pain, 2) recovery of range of motion, 3) recovery of strength for lifting weight, 4) anatomical healing without retear, 5) return to exercise and participation, 6) return to everyday household or yard activities, and 7) return to the usual job. All patients were asked to select one most desirable item of all 7 items.

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.^{10,11)} Score 1 meant 'not worried

at all', 2 'a little worried', 3 'very worried', and 4 'extremely worried'. The 64 items were classified into 7 large categories: hospital, medical staff, recovery, surgery and anesthesia, postoperative complications, pain, and return to activities of daily living. The questions reflected concerns that could actually occur or what the patient believed that might occur.

Patient's demographic data were also collected prospectively by an independent researcher using a questionnaire. The questionnaire used contained 14 dichotomized questions that addressed: 1) the residence area (urban or rural), 2) occupation (employed or unemployed), 3) the level of sports activity (high or low), 4) the level of shoulder usage during activities of daily living (high or low), 5) the willingness to change activities of daily living for rehabilitation (yes or no), 6) living with spouse (yes or no), 7) religion (yes or no), 8) previous other operation history (yes or no), 9) previous complication after other operation (yes or no), 10) previous shoulder operation history (yes or no), 11) previous rotator cuff operation history (yes or no), 12) previous admission history due to medial disease (yes or no), 13) the level of information about rotator cuff disease (high or low), and 14) how information about rotator cuff disease was obtained (doctor or others).

Statistical analysis was done using SPSS ver. 17.0 (SPSS Inc., Chicago, IL, USA), and null hypotheses of no difference were rejected if *p*-values were less than 0.05. Descriptive statistics, *t*-test, and Mann-Whitney *U*-test were used to determine the characteristics of expectation and concern according to gender and age (< 65 years is younger age group, ≥ 65 years is older age group).

RESULTS

Among 303 patients, according to the demographic data, 242 patients lived in an urban area (79.8%), 139 patients (45.9%) had occupation, 249 patients (82.2%) had higher level of sports activity, 222 patients (73.3%) had high level of shoulder use, 226 patients (74.6%) responded that they are willing to change activities of daily living, 102 patients (33.7%) experienced previous other operation history, 17 patients (5.6%) experienced previous shoulder operation history (Table 1). Overall, only 9.6% of patients responded they had high level of information regarding to the rotator cuff disease, and 150 patients (49.5%) learned that information from a physician. Female patients had lower levels of sports activity ($p = 0.007$), and lower level of information ($p = 0.028$). The older (over 65) age group responded that they can't be willing to change activities of daily living ($p = 0.001$), were not living with a spouse ($p = 0.002$), had

Table 1. Demographic Characteristics

No.	Item	Yes	No
1	Residence area (urban/rural)	242 (79.9)	61 (20.1)
2	Presence of occupation (employed/no)	139 (45.9)	164 (54.1)
3	Level of sports activity (high/low)	249 (82.2)	54 (17.8)
4	Level of shoulder using (high/low)	222 (73.3)	81 (26.7)
5	Willing to change activities of daily living (yes/no)	226 (74.6)	77 (25.4)
6	Living with spouse (yes/no)	264 (87.1)	39 (12.9)
7	Religion (yes/no)	100 (33.0)	203 (67.0)
8	Previous other operation history (yes/no)	102 (33.7)	201 (66.3)
9	Previous complication after other operation (yes/no)	6 (2.0)	297 (98.0)
10	Previous shoulder operation history (yes/no)	17 (5.6)	286 (94.4)
11	Previous rotator cuff operation history (yes/no)	9 (3.0)	294 (97.0)
12	Previous admission history due to medial disease (yes/no)	26 (8.6)	277 (91.4)
13	Level of information (high/low)	29 (9.6)	274 (90.4)
14	Route of information (doctor/other person)	150 (49.5)	153 (50.5)

Values are presented as number (%).

previous shoulder operation history ($p = 0.008$), and lower level of information ($p = 0.007$).

All groups (male, female, older, younger) selected “relief from pain” as item most expected (Table 2). The older group selected “recovery of range of motion” as second important expectation. Other three groups selected “anatomical healing without re-tear” as second important expectative item. Overall, three items, namely, relief from pain, anatomical healing without re-tear, recovery of range of motion are the items of most concern.

Regarding concerns, three groups (male, female, < 65) selected “Will there be a delay in recovery” as the item of most concern, “I don’t know what to expect after being admitted” second, and “Will I develop postoperative pain?” third (Table 3). The older group worried about “I don’t know what to expect after being admitted.”, most. “Will this leave ugly scars?” is fifth major and unique concern of the female group.

The women particularly were more concerned than men about the following items: caregiver during hospital stay (number 15), operating on the wording side (number 32), worry about ugly scar (number 37), postoperative pain (number 44), and applying makeup or combing hair (number 63) ($p < 0.001$, all). The older age group particularly were more concerned than the younger age group

about the following items: worry about paying all the medical bills (number 6, $p < 0.001$), worry about the physician being too young and inexperienced (number 11, $p = 0.006$), postoperative pain (number 45, $p = 0.013$), worry about losing their arm (number 47, $p = 0.013$), and hospital food (number 5, $p = 0.017$).

DISCUSSION

Patients decide to have surgery with the hopes of curing their illness and to become free of discomfort. Therefore, it is important not only to achieve complete anatomical recovery without recurrence but also to identify external factors that can bring patient satisfaction.

It is already well-known that the prognosis for rotator cuff surgery differs by age, gender, size of tear, the status of the rotator cuff, and postoperative re-tears.¹²⁻¹⁷ In addition, previous studies reported that higher preoperative psychological status is strongly correlated with postoperative outcomes in rotator cuff surgery.^{4,6} That is, patients with high levels of expectation were more active and cooperative in perioperative treatment and rehabilitation, as it seemed that they were more likely to understand the nature and limitations of the surgery. Therefore, we have to know what patients want and fear during rotator

Table 2. Differences of Preoperative Expectation Items between Gender and Age

Group	Order	Items of expectation
Male	1	Relief from pain
	4	Anatomical healing without retear
	2	Recovery of range of motion
	3	Recovery of strength for lifting the weight
	5	Return to exercise and participate
	6	Return to everyday household or yard activities
	7	Return to go back to the usual job
Female	1	Relief from pain
	4	Anatomical healing without retear
	2	Recovery of range of motion
	6	Return to everyday household or yard activities
	3	Recovery of strength for lifting the weight
	5	Return to exercise and participate
	7	Return to go back to the usual job
Older	1	Relief from pain
	2	Recovery of range of motion
	4	Anatomical healing without retear
	6	Return to everyday household or yard activities
	3	Recovery of strength for lifting the weight
	5	Return to exercise and participate
	7	Return to go back to the usual job
Younger	1	Relief from pain
	4	Anatomical healing without retear
	2	Recovery of range of motion
	6	Return to everyday household or yard activities
	3	Recovery of strength for lifting the weight
	5	Return to exercise and participate
	7	Return to go back to the usual job

cuff surgery, and it is no less important than the surgical program and technique.

Barely 29 patients (9.6%) responded that they have enough information regarding to the rotator cuff disease, less than half patients (150 patients) emulated the information of disease from doctor. Misunderstand regarding to the benefit and limitation after surgery will make

Table 3. Differences of Preoperative Concern Items between Gender and Age

Group	Order	No. of item	Items of concern
Male	1	12	Will there be a delay in recovery?
	2	1	I don't know what to expect after being admitted.
	3	44	Will I develop postoperative pain?
	4	27	Will I need another operation?
	5	54	Will I be able to use my shoulder as much as I wish?
Female	1	12	Will there be a delay in recovery?
	2	1	I don't know what to expect after being admitted.
	3	44	Will I develop postoperative pain?
	4	45	Would the operation resolve the pain?
	5	37	Will this leave ugly scars?
Older	1	1	I don't know what to expect after being admitted.
	2	12	Will there be a delay in recovery?
	3	44	Will I develop postoperative pain?
	4	41	Would I be able wear the brace consistently?
	5	46	Would the operation resolve the pain?
Younger	1	12	Will there be a delay in recovery?
	2	1	I don't know what to expect after being admitted.
	3	44	Will I develop postoperative pain?
	4	41	Would I be able wear the brace consistently?
	5	27	Will I need another operation?

significant difference of treatment goal between patient and surgeon. Therefore, the lack of sufficient and reliable knowledge of disease is confronting problem in rotator cuff patients.

Relief from pain is most hoped-for item in all gender and age groups. As demonstrated in studies on total knee replacement,^{18,19)} becoming pain-free plays a pivotal role in determining patient expectations. In addition, no recurrence (anatomical healing without retear) was the second major issue. Considering that frequency rates of postoperative retear or non-healing have been reported to be from 30% up to 90%,²⁰⁻²²⁾ it is imperative that patients understand prior to surgery the nature and limitations of rotator cuff reconstruction. Recovery of range of motion is within the top three expectations in all populations, and it is more desirable items in older age group.

In contrast, 64 items were designed to measure spe-

cific and factual psychological concerns the patients had before and after surgery, as opposed to the 7 items in the expectation category that reflected positive attitudes towards improvement of their condition.

The highest expectation is relief of pain, but specifically what worried patients the most was the duration of recovery, understandable given that wearing an abduction brace for 4 to 8 weeks is required after surgery and there are limitations in activities of daily living and physical activities. Concerns pertaining to the hospital stay itself ranked second, which is a common concern for preoperative patients. That concern is the more frequent in the older age group. They therefore need more detailed counseling regarding the admission period. Explaining the inpatient treatment and plan in detail at the beginning would help alleviate their fears and foster a more trusting doctor-patient relationship.

Interestingly, there are several distinct differences based gender and age. Women responded that they had lower level of sports activity, and lower level of information. They especially worried about caregiver during hospital stay, operating on the wording side, worry about ugly scar, postoperative pain, and applying makeup or combing hair than men. Older patients responded that they can't be willing to change activities of daily living, no living with spouse, previous shoulder operation history, and lower level of information. They especially worried paying all the medical bills, worry about too young and inexperienced doctor, postoperative pain, worry about losing their arm, and hospital food.

One needs to comprehend and individualize specific concerns patients have based on their demographic characteristics. Surgeons have to be sensitive towards such gender and age-specific concerns and approach each case individually through preoperative counseling. Sometimes, patient's has unrealistic concern which can rarely occur. Assuaging unwarranted or unrealistic fears could help re-

solve negative psychological states.

It has been observed that greater preoperative expectations correlated with better postoperative performance on the Simple Shoulder Test (SST), Disabilities of the Arm, Shoulder and Hand (DASH), each visual analogue scale, and the Short Form-36 (SF-36).⁴⁾ Those who had higher levels of concern were less healthy, both physically and mentally, as assessed by the preoperative SF-36 results.⁶⁾ Therefore, raising expectations and solving concerns is important for preoperative management. Our results are useful for understanding the expectations and concerns of Korean patients had prior to rotator cuff surgery, and help to improve the outcome of rotator cuff surgery by boosting their expectations and relieve their worries via preoperative counseling.

In interpreting the findings of this study, several limitations should be acknowledged. First, our study was performed at a single regional territory. Our result may not reflect characteristics at a nation-wide level. Second, although we used a detailed questionnaire for patient's expectation and concern, there is a lack of proper tools to measure objectively overall various psychological factors. We need to devise better tools to accurately and quantitatively measure those factors.

This study has helped us recognize the expectations and concerns of Korean patients prior to rotator cuff surgery. This can empower patients to formulate realistic expectations and make informed decisions. We feel that we can achieve higher levels of postoperative satisfaction by analyzing expectations and concerns in depth and addressing these proactively.

CONFLICT OF INTEREST

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

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