

Effect of the Experiences of Total Knee Replacement on Clinical Satisfaction in Patients with Osteoarthritis

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Abstract. This paper is to investigate the effect of the experiences of total knee replacement on clinical satisfaction in patients with osteoarthritis. The subjects of this paper were 136 patients who had been visited a general hospital which located in Metropolitan area. Descriptive statistics, t-test, ANOVA, and multiple regression were used for this study. The results of this study are follows. First, for age, at satisfaction of operation according to the aging, it showed significantly higher ($t=0.462$, $p<0.05$) than other factors. Second, the R^2 represents 0.168 in independent variable including multiple logistic regression model and 16.8% in decision, R^2 . Therefore, the study is needed systematic patient management to increase the satisfaction of total knee replacement and apply its related factors.

Keywords: Total knee replacement, Clinical satisfaction, Osteoarthritis, Patients, Management

1 Introduction

Knee replacement rates among degenerative arthritis patients have increased sharply over the past two decades, with substantial upward trends in readmissions and revision complications too, a study showed. The number of total knee replacement procedures went up 243,802 from 1991 to 2010 and the per capita rate rose 99% to 62.1 per 10,000 enrollees, according to an analysis of fee-for-service medical records, hospital stays posted over the period are most commonly caused by rising readmissions and complications in revision procedures, particularly infections[1],[2]. The importance of clinical service has always been emphasized as society's basic infrastructure essential in keeping its people healthy.

However market liberalization and the local Korean medical service market are forced to grapple with foreign competition[1],[3]. Patient satisfaction is important in a effort to decrease medical costs and to improve patient care, a multicenter randomized study was launched nine years ago to determine if satisfied patients led to an actual improved quality of care, healthcare cost savings, and increased life expectancy. Patient satisfaction appears to be directly related to increased mortality and morbidity [4],[5].

In order to solve the urgent problem, we should look for the practical plans. However, there were few studies to deal with patient satisfaction of clinical satisfaction of total knee replacement operation until present. Therefore, this paper is to investigate the effect of the experiences of total knee replacement on clinical satisfaction in patients with osteoarthritis. Thus, this paper is expected that the experiences of total knee replacement operation will contribute to improve the quality of life in degenerative arthritis patients.

2 Materials and Methods

2.1 Study Materials

Study participants were patients who were treated with total knee replacement at least 6 weeks ago by orthopedic surgery of a general hospital in Metropolitan area. The data were collected by interview and self-administered questionnaire from February 17 to March 31, 2014. The subjects of the study were 136 patients who diagnosed with osteoarthritis and received surgery at orthopedic surgery in Metropolitan province were selected for this study.

2.2 Study Methods

To measure the satisfaction of TKP, questionnaire tool was used. SPSS(Ver.18) program was used for data analysis. General characteristics of study subjects were measured descriptive statistics by percentage and number. The t-test or ANOVA was used to observe a statistically significant difference between general characteristics of study subjects and clinical satisfaction of total knee replacement. This study was performed using a multiple regression model to determine factors influencing on clinical satisfaction of the experiences of total knee replacement. Data analysis of t-test or ANOVA was performed with the level of statistical significance for testing at 0.05% or 0.01%.

3 Results

3.1 Clinical Satisfaction According to General Characteristics

Table 1 represents clinical satisfaction according to general characteristics. For age, the satisfaction had the highest mean score of 60-69 years old(4.75 ± 0.51) and followed over 70 years(4.19 ± 0.34). The quality of operation had the lowest percentage at under 49 years old(3.06 ± 0.42) for all cases combined. At satisfaction

of service according to the aging, it showed significantly higher($t=0.462$, $p<0.05$) than other factors. At patients' perception according to general characteristics, mean score(4.29 ± 0.51) of male shows significantly higher than mean score(3.64 ± 0.47) of female($t= 0.691$, $p<0.05$).

Table 1. Clinical Satisfaction According to General Characteristics

Variables	Quality	Satisfaction	Perception
	Mean±S.D.	Mean±S.D.	Mean±S.D.
Age/yrs.			
≤49	3.06±0.42	3.82±0.35	4.09±0.52
50-59	4.68±0.39	4.16±0.42	4.76±0.39
60-69	3.95±0.36	4.75±0.51	4.32±0.47
≥70	3.72±0.47	4.19±0.34	4.18±0.42
	F=0.318	F=0.462**	F=0.391
Gender			
Male	3.29±0.42	3.76±0.29	4.29±0.51
Female	4.57±0.35	3.91±0.35	3.64±0.47
	t=-1.418	t=-2.305	t=0.691*
Education			
Under middle	3.92±0.41	4.17±0.45	3.84±0.35
High school	4.25±0.35	4.02±0.42	4.06±0.42
Over college	3.87±0.42	4.57±0.48	4.51±0.47
	F=0.305	F=0.491	F=0.683
Monthly income			
≤199	3.19±0.42	4.29±0.37	3.07±0.49
200-399	3.25±0.39	3.41±0.82	4.91±0.56
≥400	4.19±0.85	4.57±0.69	4.26±0.42
	F=-1.940	F=-1.275	F=0.739

* $P<0.05$ ** $P<0.01$

3.2 Clinical Satisfaction of Surgery Based on a Multiple Regression Analysis

Table 2 represents clinical satisfaction of surgery based on a multiple regression analysis. The R^2 represents 0.168 in independent variable including a multiple regression model and 16.8% in decision, R^2 . In terms of age, female's score of 60-69 years old after application significantly increased than male($p<0.05$) in quality of surgery.

Table 2. Clinical Satisfaction of Surgery Based on A Multiple Regression Analysis

Variables	Quality	Satisfaction	Perception
	Mean±S.D.	Mean±S.D.	Mean±S.D.
Age/yrs (focusing on over seventy)			
≤49	-0.031(0.086)	-0.037(0.142)	-0.176(2.51)
50-59	-0.015(0.091)	-0.015(0.139)	-3.824(2.69)*

60-69	0.018(0.147)*	0.294(0.106)	-5.762(1.80)
Gender (focusing on male)			
Female	-0.163(0.085)	-0.002(0.284)	-0.028(0.427)
Education (focusing on over college)			
Under middle	-0.057(0.079)*	0.025(0.176)	0.041(0.192)
High school	-0.004(0.064)	-0.019(0.153)	-0.027(0.146)
Income (focusing on over 400 million won)			
≤199	-0.041(0.037)	0.172(0.119)	0.482(1.287)
200-399	-0.036(0.085)	-0.194(0.164)	1.279(1.350)
R-square	0.168	0.275	0.417
F	1.625	4.352*	6.189*

* $P < 0.05$

4 Discussion

This study investigates contributing factors for quality of life, satisfaction and perception of operation in patients who received surgery. This will enable to provide fundamental references for researchers to perform the more effective intervention in patient care.

As a result, for satisfaction of service, according to the aging, the satisfaction of surgery increased significantly. At patients' perception according to general characteristics, mean score male shows significantly higher than mean score of female. The findings were similar with the previous studies on the other surgery patients [2],[5]. This study suggests that this study shows the most efficient way of utilizing the clinical research of total knee replacement.

This study performed a multiple regression to find out factors contributing to quality of life and clinical satisfaction after total knee replacement, The main factors affecting satisfaction of clinical service were age, gender and the time period after surgery. They predicted 16.8% of satisfaction of clinical service. In addition, the functional scores of questionnaire items of the most significant factors are age and gender. The finding was consistent with the result of earlier researches[6],[7]. Therefore, it needs to perform systematic patient management. There is a need for the program to be implemented on the groups who characterize having lower levels in satisfaction of surgery and patients' perception.

5 Conclusion

The study is the effect of total knee replacement operation on clinical service satisfaction. The results of this study are follows. First, for age, at satisfaction of surgery according to the aging, it showed significantly higher($t=0.462$, $p < 0.05$) than other factors. Second, at patients' perception according to general characteristics, mean score(4.29 ± 0.51) of male shows significantly higher than mean score(3.64 ± 0.47) of female($t=0.691$, $p < 0.05$). Third, the R^2 represents 0.168 in

independent variable including a multiple regression model and 16.8% in decision, R^2 . Therefore, the study is needed systematic patient management to increase the satisfaction of total knee replacement operation and apply its related factors.

References

1. Statistics Korea, Annual Report on the Cause of Death Statistics, pp. 13--15 (2013).
2. Shah Nawaz A, Nishat Q, Mohammad M, Effectiveness of Electromyographic Biofeedback Training on Quadriceps Muscle Strength in Osteoarthritis of Knee, Hong Kong Physiotherapy Journal, 29, 86--93 (2011)
3. Yilmaz OO, Senocak O, Sahin E, Efficacy of EMG-Biofeedback in Knee Osteoarthritis, Rheumatology, Int, 30, 7, 887--892 (2010)
4. Rossi MD, Masson S, Low-limb Force Production in Individuals After Unilateral Total Knee Arthroplasty, Arch Phys Med Rehabil, 85, 8, 1279--1284 (2004)
5. Kirnap M, Calls M, Turgut AD, The Efficacy of EMG-biofeedback Training on Quadriceps Muscle Strength in Patients After Arthroscopic Meniscectomy NI Med J. 118 (2005)
6. Shaw T, Williams MT, Chipchase LS, Do Early Quadriceps Exercises Affect the Outcome of ACL Reconstruction? A Randomised Controlled Trial Aust Physiother, 51, 1, 9--17 (2005)
7. Stitik TP, Kaplan RJ, Kamen LB, Rehabilitation of Orthopedic and Rheumatologic Disorders, Osteoarthritis Assessment, Treatment, and Rehabilitation, Arch Phys Med Rehabil, 86, 3 (2005)