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Evaluation of the Quality of Life and Psychiatric Symptoms of Patients with Primary Coxarthrosis after Total Hip Arthroplasty

Zhodnocení kvality života a psychických syndromů u pacientů s primární koxartrózou po totální náhradě kloubu

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ABSTRACT

PURPOSE OF THE STUDY

In this study, it was aimed to examine the preoperative and postoperative quality of life and psychiatric symptoms of the patients with primary coxarthrosis after total hip arthroplasty.

MATERIAL AND METHODS

150 patients undergone total hip arthroplasty were involved in this study. The socio-demographical data form prepared by the researchers was utilized before and after the operation in order to demonstrate disease-related socio-demographical characteristics of the patient. The Quality of Life Scale Short Form (SF-36), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Harris Hip Score (HHS) and Visual Analog Scale (VAS) were implemented in the preoperative period and at 6th and 12th week after the operation.

RESULTS

Of the patients involved in study, 28.7% were male and 71.3% were female. Their mean age was 58.34±11.92 year. While statistically significant differences were found between the preoperative and postoperative periods in terms of physical function, physical role limitation, emotional role limitation, energy, social function, pain, and general health subscales of SF-36, no significant differences were found relating mental health subscale. In BAI, BDI, VAS, and HHS comparison, statistically significant differences were found between the preoperative and postoperative periods, except for BAI.

CONCLUSIONS

In this study, it was determined that primary coxarthrosis affects significantly the quality of the patients' lives in a negative way and can be accompanied by mental symptoms. After total hip arthroplasty, significant improvement was observed in quality of life, depression and pain scores.

Key words: total hip prosthesis, quality of life, mental symptoms.

INTRODUCTION

Osteoarthritis (OA) is one of the diseases that are common in loco-motor system. Hip joint is the large joint, where the OA is seen at second most frequent (9). Hip osteoarthritis is a disease causing pain and mobility limitation due to the degeneration of joint especially in elderly people. Physical limitations occurring as a result of the symptoms cause severe deteriorations in quality of lives of patients. Significant changes have occurred in osteoarthritis therapy after the introduction of joint prosthesis operations. The objective in hip arthroplasty is to remove the pain, to regain the function with increased mobility, and hence to improve the quality of patients' lives (25).

In order to decrease the risks related with the surgery, the studies on improving the surgical techniques are

still carried out (13). However, despite all these advancements, different clinical results may be achieved even in clinics implementing the same implant (6). These different clinic results give rise to the notion that there may be other factors affecting the clinic results in addition to the surgical technique and mechanic factors (6, 7, 10). As in all the other diseases, one of the criteria used in order to evaluate the treatment results for osteoarthritis is the change achieved in the quality of life. To determine that change, general or specific scales of quality of life can be utilized (7, 10). General quality of life scales are capable of determining the treatment-related adverse effects and complications that are not directly related to the disease. Especially in the patients with osteoarthritis, due to the accompanying diseases,

the scales of general quality of life provide a holistic perspective. As well as the satisfaction and happiness from the life, the quality of life can also be defined as the way of perceiving the individual's own status within the context of culture and value system. Quality of life covers the individuals' physical functions, psychological statuses, intra-family and other social relations, interactions with the environment and beliefs. Health-related quality of life, when compared to quality of life in other domains, has been determined to have a more significant effect on general quality of life (8, 24).

The majority of the individuals suffering from osteoarthritis have psychiatric symptoms or disorders. Such mental disorders that may deteriorate the daily functionality and lead to disability may frequently be overlooked or misdiagnosed, and therefore affect the patient's therapy in negative way. Physical factors can lead to physical disorders, and those physical disorders are known to be able to influence the patient's psychology negatively. While depression is frequently seen in chronic pain syndromes, primary psychiatric disorder is frequently a cause for pain. For this reason it is necessary for clinicians to be aware of such mental disorders that can deteriorate the quality of patients' lives (2, 3, 8).

In this study, the symptoms related to mental disorders in patients with total hip prosthesis and the effects of those disorders on quality of patients' lives are investigated.

MATERIAL AND METHODS

This study was carried out with patients, who applied to Orthopedics and Traumatology Clinic of Medical Faculty of Recep Tayyip Erdoğan University between April 2009 and October 2012. The total hip prosthesis was implemented on 150 patients (43 males and 107 females) in this study. The study was compiled following the principles outlined in the Declaration of Helsinki, and affirmed by the local ethics committee.

The socio-demographical data form prepared by the researchers was utilized before and after the operation in order to demonstrate disease-related socio-demographical characteristics of the patient. The Quality of Life Scale Short Form (SF-36) (16), Beck Depression Inventory (BDI) (5), Beck Anxiety Inventory (BAI) (4), Harris Hip Score (HHS) (22) and Visual Analog Scale (VAS) (17) were implemented in the preoperative period and at 6th and 12th week after the operation.

Involvement criteria: The implementation of total hip prosthesis operation based on primary coxarthrosis and the implementation of evaluation scales before the operation and at the 6th and 8th post-operative weeks, the participants that read the information form and accepted it, between 30 and 80 ages, did not use any psychotropic medication in the last 6 months, had no mental retardation, dementia, alcohol and/or substance use, or communication problem.

Exclusion criteria: Those who did not fill the study form, individuals younger than 30-year-old or older

than 80-year-old, individuals having significant diseases in addition to actual complaints (cancer, liver failure, kidney failure, endocrine pathology, etc.), individuals having mental retardation, severe psychotic disorder, and organic mental disorder, pregnancy.

Statistical analysis

Kolmogorov Smirnov test was utilized in order to determine if the data found are distributed normally. The analyses of non-normally distributed variables were performed via Wilcoxon test. Spearman test was used for correlation analysis. The data obtained from the measurements were expressed as arithmetic mean±standard deviation, while the data obtained by counting were expressed with numbers (%). The level of significance was taken to be $p < 0.05$.

RESULTS

Mean age of the cases was 58.34±11.92 years. 80 of the women were married, 10 women were single and 17 women were widow, while 35 of the men were married, 5 men were single and 3 men were widower. Mean age of the women was 56.16±12.63, while that of the male patients was 62.11±12.35 years. The comparison of socio-demographical characteristics of the study group is presented in Table 1. Mean values and standard deviation of the results of SF-36, BDI, BAI, and VAS scales were implemented before the operation and 6th and 12th post-operative weeks. Then the statistical evaluations were made. The distribution of mean scores of SF-36 between the groups is presented in Table 2 in detail. The statistical comparison of the mean scores of SF-36 groups was performed between preoperative and 6th and 12th post-operative weeks. Statistically significant differences were found between preoperative and postoperative periods in terms of physical function, physical role limitation, emotional role limitation, social function, pain and general health. But no statistically significant difference could be found between preoperative and postoperative periods in emotional well-being. Statistical comparisons of mean scores of cases' BDI, BAI, and VAS were made between preoperative and 6th and 12th postoperative weeks. Statistically significant difference was found between preoperative and postoperative periods in terms of BDI and VAS scores. But no statistically significant difference was found in BAI scores between preoperative and postoperative periods. The results are presented in Table 3 in detail.

DISCUSSION

Besides leading to pain and mobility limitations, hip osteoarthritis is a condition that also has psychosocial and mental dimensions. The disease-related complications and physical function loss, the problems and psychiatric disorders that develop as the duration of the disease increases, the emotional status and the difficulties experienced due to the disease also affect the social

function of the patient. In many studies, it has been reported that the quality of life of the individuals having primary hip osteoarthritis was worse than that of general population (8, 23, 24, 25). In recent years, since it reflects the well-being, it became necessary to evaluate the quality of life of the patients having primary hip osteoarthritis.

The mean age of our cases was 58.34 ± 11.92 years. Considering the findings related with socio-demographical characteristics of our study, it was determined that 26% of the patient group graduated from elementary school and 29.3% were unemployed. Given the literature related to the topic, it was seen that similar socio-demographical characteristics were observed in the studies that compared the levels of quality of lives. Especially the age range, gender and occupational status indicate the similar rates (18, 19).

In our study, we compared the preoperative and postoperative quality of lives of our patient group. Accordingly; the lowest preoperative performance among the sub-scales of SF-36 belongs to physical role limitation domain (38.25 ± 42.26), while the highest performance at 6th postoperative week belongs to pain domain (67.8 ± 21.2). Statistically significant differences were found between preoperative and postoperative values in physical function, physical role limitation, emotional role limitation, energy, social function, pain and general health domains. The most significant difference was found in physical role limitation (59.2 ± 40.7), while the least significant one was found in general health domain (52.6 ± 11.5). Nevertheless, no statistically significant difference was found between preoperative and postoperative mean scores of mental health among the sub-scales of SF-36. This indicates that the quality of life was positively affected in short time after the operation in the patients who had deteriorated quality of life in that domain especially because of the

Table 1. Distribution of socio-demographical characteristics of cases with total hip prosthesis

Socio-demographical characteristics		Hasta (n=150)
Age (years)	mean \pm SD	58.34 ± 11.92
Gender	male	43 (28.7%)
	female	107 (71.3%)
Educational status	no formal education	39 (25.8%)
	elementary school	98 (64.9%)
	secondary school	6 (4%)
	high school	6 (4%)
	vocational school/university	1 (0.7%)
Economic status	mean monthly income (lira)	1070
Occupational status	working	45 (30%)
	not working	105 (70%)

Table 2. Comparison of mean scores of cases with 6th and 12th postoperative weeks in SF-36 sub-scales

SF-36 sub-scales	Preoperative (mean \pm SD)	6 th postoperative week (mean \pm SD)	p	12 th postoperative week (mean \pm SD)	p
Physical function	30.6 ± 21.2	50.9 ± 26.3	< 0.0001	55.7 ± 26.3	< 0.0001
Physical role limitation	17.7 ± 32.8	53 ± 40.9	< 0.0001	59.2 ± 40.7	< 0.0001
Emotional role limitation	40.7 ± 43	56.4 ± 39	< 0.0009	61.3 ± 39	< 0.0001
Energy	43.9 ± 19.6	50.4 ± 18	< 0.038	54.9 ± 14.1	< 0.001
Emotional well-being	57.1 ± 17.2	58.3 ± 18	< 0.55	57.5 ± 16.7	< 0.8
Social function	49.7 ± 23.2	65 ± 25.3	< 0.0001	65.6 ± 24.5	< 0.0001
Pain	41.2 ± 19.2	67.8 ± 21.2	< 0.0001	68.1 ± 21.8	< 0.0001
General health	47 ± 13.5	52.1 ± 12.1	< 0.0007	52.6 ± 11.5	< 0.0001

Table 3. Comparison of preoperative and 6th and 12th postoperative weeks mean scores of cases in BDI, BAI, VAS, and HHS

		BDI	BAI	VAS	HHS
Comparison of preoperative values with 6 th postoperative week	(mean \pm SD)	15.25 ± 1	17.12 ± 10.9	6.9 ± 2.4	41.44 ± 13.30
	P	10.22 ± 8.77	15.66 ± 11.54	3.6 ± 2.3	75.45 ± 13.95
		≤ 0.001	=0.179	≤ 0.001	≤ 0.001
Comparison of preoperative values with 12 th postoperative week	(mean \pm SD)	15.25 ± 1	17.12 ± 10.9	6.9 ± 2.4	41.44 ± 13.30
	P	9.49 ± 7.52	15.12 ± 11.56	2.3 ± 2.1	78.52 ± 13.72
		10.22 ± 8.77	15.66 ± 11.54	3.6 ± 2.3	75.45 ± 13.95
Comparison of 12 th postoperative week with 6 th postoperative week	(mean \pm SD)	9.49 ± 7.52	15.12 ± 11.56	2.3 ± 2.1	78.52 ± 13.72
	P	=0.182	=0.072	≤ 0.001	≤ 0.001

severe preoperative physical difficulties. But, it is also interesting that there was no significant recovery in mental health of the patients having relaxed physical functions and decreased pain. In other words, in order to be able to achieve mental well-being, it is necessary for the patients to diagnose the actual mental symptoms and disorders and to involve them into the treatment plan. Our findings are in parallel with those of other studies (10, 19).

Along with the aging, the adaptation to the changes in body and environment is seen. One of the psychiatric changes that this condition leads especially in elderly

patients is the depression (7, 8, 11). Hip osteoarthritis can be given as an example for the factors leading to psychiatric symptoms and disorders. In addition to depression, anxiety may also be seen (2). The life-long prevalence of depression among those patients is 2 folds of that of the general population (8). Furthermore, it has been reported that depression symptoms were seen in 10% of patients (1). The presence of depressive symptoms may lead to deterioration of the patient's compliance to the treatment and insufficient response to the therapy, and this eases the development of complication. For this reason, the treatment of depressive symptoms should be considered as an important factor in management of the disease (7, 15). In our study, BAI and BDI were utilized in order to measure the anxiety and depression levels of the patients. While the preoperative mean BDI score of the patient group was 15.25 ± 1 , the same value at 6th postoperative week was 10.22 ± 8.77 and 9.49 ± 7.52 at 12th postoperative week, $p \leq 0.001$, and this difference was statistically significant. The results obtained in our study corroborates the findings of other studies in this topic (6, 7, 10, 19). Although a slight difference was found between preoperative and postoperative mean scores of BAI, it is attention-grabbing that this difference is not statistically significant. In other words, this indicates that the anxiety symptoms continued after the operation in cases having preoperative anxiety symptoms. In the study of Odegard S. et al., they have examined the rheumatoid patients, and found the level of depression to be 5–13% and level of anxiety to be 20–30%. They explained the difference between the anxiety and depression with the multifactorial structure of development of anxiety (14). This situation can be explained with the preoperative and postoperative anxiety related to the operation, how the recovery period will pass, and walking and falling-down fears. The fact that our study was carried out in a period close to the operation may be effective on the results. As stated by Vissers et al., the post-THR results and the mental health of patient are related to each other (26).

Harris hip score (HHS) is a reliable test that is widely used in evaluating the clinic results after hip replacement surgery (22). In our study, we used HHS in evaluating the preoperative and postoperative clinic results. While preoperative mean HHS score of the patient group was 41.44 ± 13.30 , the postoperative mean score was 75.45 ± 13.95 at 6th postoperative week and 78.52 ± 13.72 at 12th postoperative week. The differences between these values were statistically significant ($p \leq 0.001$). The findings of our study are in parallel with other studies on this topic (3, 12, 20). The statistically significant change in HS between preoperative and postoperative periods indicates that the clinic results of surgical treatment and rehabilitation process are positive. While preoperative mean VAS score of patients was 6.9 ± 2.4 , the postoperative mean scores were 3.6 ± 2.3 at 6th week and 2.3 ± 2.1 at 12th week. There was a statistically significant difference between these values ($p \leq 0.001$). In parallel with those results, the HHS, SF-36, BDI and

BAI scores indicating the relaxation in physical activity and decrease in pain were affected positively. The results of our study corroborate the findings of other studies on this topic (19, 21).

This study has also some limitations. Selection of the patients from a single center and in certain number and the absence of a structured interview that has diagnostic importance in psychiatric assessments make it impossible to make generalizations. But the careful implementation of inclusion criteria while selecting the cases, exclusion of the confusing factors, and separate comparisons of preoperative and postoperative periods are important.

CONCLUSIONS

In this study it was determined that hip osteoarthritis negatively affects the quality of patient's life and the patient's quality of life increases after the total hip prosthesis. Also, it was found that many mental symptoms accompany with clinic table in those patients and the depressive symptoms decreased after the operation. These mental symptoms that affect the actual medical treatment of the patients and course of the disease may frequently be overlooked or misdiagnosed by the clinicians. Our study revealed the necessity of inter-clinics consultation and liaison. Examination of the cases from bio-psycho-social aspect and supporting the search of psychiatric assistance are important. Despite all of its limitations, from the aspect of its findings, we believed that our study would enlighten the way for further studies on this topic.

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