TOTAL KALÇA ARTROPLASTİSİ SONRASI KOMPLİKASYON ORANLARINI ETKİLEYEN SOSYAL VE DEMOGRAFİK FAKTÖRLER

Social and Demographic Factors Influencing the Complication Rates After Total Hip Arthroplasty

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ÖZET

Amaç: Sosyal ve demografik faktörler değişik tıbbi durumlarda sonucu etkileyen önemli faktörlerdir, ancak total kalça artroplastisi sonrası bu faktörlerin sonuçlara etkisi çok da iyi anlaşılamamıştır. Bu çalışmada; sosyal, demografik ve klinik faktörlerin, total kalça artroplastisi (TKA) sonrası komplikasyon oranlarına etkisini değerlendirdik.

Gereç ve Yöntemler: Bu çok merkezli retrospektif çalışmaya; TKA uygulanan 38 erkek ve 69 kadın olmak üzere 107 hasta (ortalama yaş; 66, aralık:54-80 yaşlar) alındı. Hastaların vücut kitle indeksi (VKİ), anestezi tipi, Amerikan Anestezistler Derneğinin (ASA -American Society of Anesthesiologists) skoru (ASA), ameliyat süreleri ve ağrının kronikleşme süresi klinik kayıtlarından tarandı. Medeni durum, eğitim düzeyi, sigara alışkanlığı ve hastaların yaşam şekli gibi veriler kaydedildi. İlk iki yıllık takip sürecinde görülen komplikasyonlar da kaydedildi.

Bulgular: Cinsiyet, yaş, eğitim düzeyi, anestezi tipi ve operasyon süresi yönünden ameliyat sonrası komplikasyon görülen ve görülmeyen hastalar arasında fark yoktu (p>0.05). Komplikasyon görülen hastalarda, daha yüksek VKİ (p=0.016), ASA skoru (p=0.037) ve kronik ağrı süresi (p=0.000) vardı. Yalnız ya da huzurevinde yaşayan, evli olmayan ve sigara kullanan hastalarda daha yüksek komplikasyon oranları (p <0.05) vardı.

Sonuç: Postoperatif komplikasyon oranı, hastanın cinsiyeti ve yaşıyla, eğitim düzeyiyle, anestezi tipi ve çalışma süresi ile ilişkili değildir. Yüksek VKİ, ASA skoru ve kronik ağrı süresi, tek başına veya huzurevinde yaşıyor olmak ve sigara kullanımı TKA sonrası komplikasyon oranlarını arttırmaktadır. Hastalar; TKA sonrası komplikasyonları önleme stratejisinin bir parçası olarak, bu risk faktörleri hakkında bilgilendirilmelidir.

Anahtar kelimeler: Total kalça artroplastisi; Komplikasyon; Sosyal; Demografik; Sonuç

ABSTRACT

Introduction: Social and demographic factors are important factors that influencing outcomes in a number of medical conditions but their role in total hip arthroplasty is poorly understood. We evaluated the effect of social, demographic and clinical factors on complication rates after total hip arthroplasty (THA).

Material and Methods: This multicentre retrospective study included 107 patients (38 men, 69 women; mean age 66 years; range 54 to 80 years) undergoing THA. The body mass index (BMI), anaesthesia type, ASA score, operation time and chronicity of the pain were screened. Marital status, education, smoking habit and living style of the patients were recorded. Complications were also recorded from regular first two-year follow-up.

Results: Regarding to the gender, age, education level, anaesthesia type and operation time, there was no differences between the patients who had postoperative complication or not (p>0.05). Patients who have complications have higher BMI (p=0.016), ASA score (p=0.037) and chronic pain duration (p=0.000) Patients who lived alone or lived in nursing home, were not married and smoked, had higher complication rates (p<0.05).

Conclusion: Postoperative complication rate was not correlated with gender and age of the patients, anaesthesia type and operation time. Higher BMI, ASA score and duration of chronicity, lower education level, living by oneself or in nursing home and smoking habit increase the complication rates after total hip arthroplasty. Patients should be informed about these risk factors as the part of strategy in preventing complication after THA.

Key words: Total hip arthroplasty; Complication; Social; Demographic; Outcome

INTRODUCTION

Complications and early readmission rates are important parameters in determining success of total hip arthroplasty (THA) and post-operative lifestyle, socioeconomic parameters are poorly understood possible independent predictor outcomse THA [1-5]. Identifying risk factors which need special attention to increase the response rate and decrease the complication rate is critical to obtain successful result after TKA [1,2,6-9]. In every part of the world, there is growing recognition of sociodemographic disparities influencing outcomes of a major surgeries such as TKA, and such disparities recently triggered discussions on adjustment of quality measures for sociodemographic risk factors [10,11].

Influence of age [1-3,6,7], sex [1,2,6,7], body mass index (BMI) [2,3,5-7], marital status [4,8], education [4,7,8], smoking [5,8,12,13] and several other factors on outcome of THA were investigated. However influence of these factors on complication rates is poorly understood and bests our knowledge, there is no study examining influence of these factors on post-operetive complication rates in Turkish literature. We evaluated the effect of social, clinical and demographic factors such as age, sex, BMI, marital status, education level, ASA score, anaesthesia type, operation time and chronicity of pain on complication rates after THA.

MATERIAL AND METHODS

This multicentre retrospective study comprised 107 patients who underwent TKA and THA procedures. Information on demographics (age, sex) , surgical characteristics (i.e., ASA score, operation time, anaesthesia type), BMI, smoking habit, education, chronicity of pain, life style and complications within two years after surgery were screened from hospitals and clinic records. All patients were followed up by the surgeon at least four times in the first posts of surgical year, and two times in 2 years. If there was any missing data from follow-up records, patients are contacted by letter and/or telephone and asked to complete a standardized data collection form which includes information mentioned above and complications.

Standard data such as age, sex, BMI were obtained from hospital records and confirmed by forms filled by patients. Information on marital status, education, smoking, chronicity of pain and living style was retrieved from the patient-provided forms stored as part of the patients' electronic medical records. Marital status was defined based on patients' responses to their relationship status at the time of surgery (i.e., married, widowed or divorced, single). Education level was categorized under 4 categories (illiterate, primary school, high school and university) based on patients' report of the highest grade of school that they had completed. Smoking status was classified as smoker on current and past smoking history. Living-style was classified as alone, with family and in nursing home. Chronicity of pain was described as duration of time since first onset of hip pain. Anaesthesia type, ASA score and operation time were screened from hospital records and confirmed by anaesthesia chart of the patients.

We classified complications as surgical site infections; implant loosening, instability, dislocation, periprosthetic fracture, neurovascular problems, wound problems, thrombovascular events and presence of persistent pain during follow-up of two years after surgery. Patients were reported in the study by classifying into two according to the presence or absence of the complication during follow-up and this classification was also used during statistical evaluation. Descriptive statistics were used to characterize the sample. All data were calculated as mean and standard deviation. Chi-square test and student's t test was used for statistical analysis of the patient data. Statistical calculations were performed with SPSS 20.0 (SPSS Inc.,Chicago, IL, USA.). A value of $P<0.05$ was considered statistically significant.

RESULTS

This study contains 107 patients whose mean age was 66.4 years and 64% were female. Mean BMI of the patients was 30.2 kg/m2. At the time of surgery, a majority of patients (57%) reported being married.

About a third of patients were illiterate and 43% of the patients had primary school education. At the time of surgery, 19% of the patients had smoking history. Regarding to the living style; 17% of the patients lived alone and 15% lived in nursing home. Age, sex and education level had no influence in complication rates after TKA. Patients who lived alone or lived in nursing home, were not married and smoked, had higher complication rates (p<0.05). Social and demographic data of the patients are shown Table 1 with their P values.

Regarding to the clinical data of the patients; a majority of patients (73%) had ASA III-IV score. Spinal and combined spinal-epidural anaesthesia was applied to about two third of the patients. Mean operation time was 74.2 minute. At the time of surgery, mean duration of chronic hip pain was 2.9 years. ASA score, anaesthesia type and operation time did not influence complication rates. Regarding to the chronicity of pain, patients with longer chronic hip pain duration (p=0.000) had higher complication rates. Clinic data of the patients are shown Table 2 with their P values.

Table 1: Demographic and social data of patients

	Complication (-)	Complication(+)	P-value
Female/Male	56/33	13/5	0.592
Age	65.9 ± 7.1	68.8±7.6	0.113
Body mass index	29.8 ± 3.6	32.1 ±3.6	0.016
Smoking (+/-)	7/79	11/10	0.000
Education (Illiterate/primary /High school/university)	25/40/17/7	10/6/2/0	0.118
Marital status (single/married /widowed or divorced)	12/56/21	5/5/8	0.023

The values are given as the number of patients or mean and the standard deviation.

Table 2: Clinical data of patients

	Complication (-)	Complication(+)	P-value
Pain chronicity (year)	2.5 ±1.1	4.6 ±1.6	0.000
ASA (I-II/III-IV)	17/62	1/17	0.037
Operation time (minute)	74.3 ± 14.5	73.7 ±15.6	0.879
Anesthesia (General/ Spinal-Spinalepidural	23/66	8/10	0.118

The values are given as the number of patients or mean and the standard deviation.

DISCUSSION

In the Turkish literature, there was only one study examining post-operative outcome with quality of life after THA [14]. However there was no study examining relation between social, demographic, clinical factors and complication rates. We examined the role of selected patient-reported social, demographic and clinical factors on post-operative complication rates in a cohort of patients who underwent THA surgery from data of three tertiary centres.

Our findings indicate that two non-clinical, non-modifiable social factors (education and marital status) had different influence on complication rates after THA. While education level is not associated with a higher risk of complications, patients who were married had lower complications rates compared to single or widowed/divorced patients. Several previous studies addressed smoking as a risk factor for increasing complication rates and decreasing outcome after THA [5,8,12,13,15-17] and we also concluded that smoking is absolute risk factor for higher complication rates.

The mechanisms through which social and demographic risk factors have an effect on health outcomes are complex and differences in socioeconomic composition, healthcare systems and socioeconomic measures across countries imply that the findings of some excellent studies are not always generalizable to other countries [8]. This emphasized the importance of the studies based upon a nationwide data regarding to the social and demographics factors and their influence for any type of medical situation.

In the present study, gender, age, education level, anaesthesia type and operation time, had no influence on complication rates.. Higher BMI, ASA score and duration of chronicity, lower education level, living by oneself or in nursing home and smoking habit increase the complication rates after total hip arthroplasty. These findings showed potential impact of social, demographic, clinical factors on complication rates after THA and highlighted the need of examining any other characteristic s of patients that was not existed in this study.

There are some limitations to this study. First, this study was a retrospective study with the data from hospital's computerized medical records. Further prospective studies may strengthen the conclusion of the present study. The results are only those of the selected patient-reported data, it possible to reach a more generalized conclusion with additional characteristics of the patients regarding to the social, demographic and clinical factors. Finally, this study evaluated three tertiary centres, larger patients database would help us to re-ach more generalized statement about factors influencing complication rates after THA for Turkish patients.

CONCLUSION

Postoperative complication rate was not correlated with gender and age of the patients, anaesthesia type and operation time. Higher BMI, ASA score and duration of chronicity, lower education level, living by oneself or in nursing home, being unmarried and smoking habit increase the complication rates after total hip arthroplasty. Patients should be informed about these risk factors as the part of strategy in preventing complication after THA.

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