

ORIGINAL ARTICLE**Evaluation of surgical complications of Total Knee Arthroplasty: An observational study**

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ABSTRACT:

Background: Total knee arthroplasty (TKA) has revolutionized the care of patients with end-stage knee arthritis. Hence; the present study was conducted for evaluating surgical complications of Total Knee Arthroplasty. **Materials & methods:** A total of 50 patients who underwent total knee arthroplasty were enrolled. Complete demographic and clinical details of all the patients was obtained. A Performa was made and complete preoperative details were recorded separately. Patients with presence of diabetes, hypertension, any known drug allergy or any other co-morbid condition were excluded from the present study. Hemodynamic profile was recorded intraoperatively and postoperative. All the procedures were carried out under ideal aseptic conditions. Complications associated with TKA were recorded separately. Correlation of occurrence of these complications was done with age and gender. **Results:** A total of 50 patients were evaluated. Mean age of the patients was 58.2 years. 64 percent of the patients belonged to the age group of more than 50 years. 62 percent of the patients were males while 38 percent of the patients were of rural residence. Right side was involved in 52 percent of the patients. Surgical complications were seen in 10 percent of the patients. Among them, intraoperative bleeding, thromboembolic episode, osteolysis and deep joint infection were seen in 2 percent, 2 percent, 2 percent and 4 percent of the patients respectively. Significant correlation of surgical complications with age was seen. **Conclusion:** As the age advances, there are higher chances of occurrence of surgical complications among patients undergoing TKA.

Key words: Total knee arthroplasty, Surgical complications

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INTRODUCTION

Total knee arthroplasty (TKA) has revolutionized the care of patients with end-stage knee arthritis. Despite substantial advances in primary TKA patient selection, surgical technique, and implant design, numerous studies indicate only 82% to 89% of patients were satisfied with their primary total knee arthroplasty. These reports suggest that TKA is not achieving its goal of relieving pain and restoring function in a substantial proportion of patients.¹⁻³

Variation in the utilization of total knee arthroplasty (TKA) by patients with osteoarthritis has been observed across several different studies. These studies show that utilization of TKA varies markedly by race/ethnicity, gender, and geography. White patients are more likely to undergo TKA than are African-American or Hispanic patients. Although women have been found to be more likely overall to undergo TKA than men are in some studies, when the higher prevalence of osteoarthritis of the knee in women is taken into consideration, female patients with osteoarthritis have been found to underutilize TKA when compared to male patients with osteoarthritis, often not receiving the surgery until they are at a more advanced stage of disease. Regional variations in utilization of TKA that cannot be entirely explained by prevalence of osteoarthritis have also

been observed. Overall, variation is observed in studies of total joint replacement across ethnicity, gender, and geography.⁴⁻⁶ Hence; the present study was conducted for evaluating surgical complications of Total Knee Arthroplasty.

MATERIALS & METHODS

The present study was conducted for evaluating surgical complications of Total Knee Arthroplasty. A total of 50 patients who underwent total knee arthroplasty were enrolled. Complete demographic and clinical details of all the patients was obtained. A Performa was made and complete preoperative details were recorded separately. Patients with presence of diabetes, hypertension, any known drug allergy or any other co-morbid condition were excluded from the present study. Hemodynamic profile was recorded intraoperatively and postoperative. All the procedures were carried out under ideal aseptic conditions. Complications associated with TKA were recorded separately. Correlation of occurrence of these complications was done with age and gender. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

RESULTS

A total of 50 patients were evaluated. Mean age of the patients was 58.2 years. 64 percent of the patients belonged to the age group of more than 50 years. 62 percent of the patients were males while 38 percent of the patients were of rural residence. Right side was involved in 52 percent of the patients. Surgical

complications were seen in 10 percent of the patients. Among them, intraoperative bleeding, thromboembolic episode, osteolysis and deep joint infection were seen in 2 percent, 2 percent, 2 percent and 4 percent of the patients respectively. Significant correlation of surgical complications with age was seen.

Table 1: Demographic data

Variable		Number	Percentage
Age group	Less than 50 years	18	36
	More than 50 years	32	64
Gender	Males	31	62
	Females	19	38
Residence	Rural	29	58
	Urban	21	42
Side involved	Right	26	52
	Left	24	48

Table 2: Surgical complications

Surgical complications	Number	Percentage
Intraoperative bleeding	1	2
Thromboembolic episode	1	2
Osteolysis	1	2
Deep joint infection	2	4
None	45	90

Table 3: Correlation of surgical complications with age and gender

Variable	r-value	p-value
Age	1.339	0.001 (Significant)
Gender	0.125	0.740

DISCUSSION

Total knee replacement is widely used to relieve pain and improve functional status in patients with symptomatic, end-stage knee osteoarthritis. In the last decade, the number of primary total knee replacements performed annually in the U.S. doubled, exceeding 620,000 procedures in 2009, with >97% of these performed for a principal diagnosis of knee osteoarthritis. Total knee replacement is an effective treatment for end-stage knee osteoarthritis, with symptomatic improvement exceeding 85% and long-term failure rates of <1% per year. However, individuals who undergo total knee replacement are at risk for a variety of complications, such as infection, periprosthetic fracture, symptomatic implant loosening, and implant wear leading to mechanical failure. These complications substantially diminish the benefits of total knee replacement and often necessitate revision surgery.⁷⁻⁹

A total of 50 patients were evaluated. Mean age of the patients was 58.2 years. 64 percent of the patients belonged to the age group of more than 50 years. 62 percent of the patients were males while 38 percent of the patients were of rural residence. Right side was involved in 52 percent of the patients. Surgical complications were seen in 10 percent of the patients. Among them, intraoperative bleeding,

thromboembolic episode, osteolysis and deep joint infection were seen in 2 percent, 2 percent, 2 percent and 4 percent of the patients respectively. Significant correlation of surgical complications with age was seen. Healy WL et al developed a standardized list and definitions of complications and adverse events associated with TKA. In 2009, The Knee Society appointed a TKA Complications Workgroup that surveyed the orthopaedic literature and proposed a list of TKA complications and adverse events with definitions. An expert opinion survey of members of The Knee Society was used to test the applicability and reasonableness of the proposed TKA complications. For each complication, members of The Knee Society were asked “Do you agree with the inclusion of this complication as among the minimum necessary for reporting outcomes of knee arthroplasty?” and “Do you agree with this definition?” One hundred two clinical members (100%) of The Knee Society responded to the survey. All proposed complications and definitions were endorsed by the members, and 678 suggestions were incorporated into the final work product. The 22 TKA complications and adverse events include bleeding, wound complication, thromboembolic disease, neural deficit, vascular injury, medial collateral ligament injury, instability, malalignment, stiffness, deep joint

infection, fracture, extensor mechanism disruption, patellofemoral dislocation, tibiofemoral dislocation, bearing surface wear, osteolysis, implant loosening, implant fracture/tibial insert dissociation, reoperation, revision, readmission, and death. They identified 22 complications and adverse events that they believe are important for reporting outcomes of TKA. Acceptance and utilization of these standardized TKA complications may improve evaluation and reporting of TKA outcomes.¹⁰ Soohoo NF et al identified the optimal follow-up period to report short-term complication rates after primary total knee arthroplasty. Discharge data from 1991 through 2001 was obtained from California and linked to state death records. Rates of mortality, infection, and pulmonary embolism were determined at 30-day intervals for up to 1 year postoperatively. An analysis of 222,684 primary total knee arthroplasties was performed. The peak rate and a large proportion of the complications that occurred during the first year after surgery were seen within the initial 30-day postoperative period. Regression analyses demonstrated that the patient and hospital characteristics predictive of outcome differed when comparing the results at 1 year postoperatively to shorter-term follow-up periods. The findings of this study indicate that 30- and 60-day follow-up periods provide an adequate accounting for adverse events related to mortality, infection, and pulmonary embolism. However, the regression results highlight the continued importance of reporting long-term outcomes.¹¹

CONCLUSION

As the age advances, there are higher chances of occurrence of surgical complications among patients undergoing TKA.

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