

ORIGINAL RESEARCH

Study of Evaluation of Outcome of Primary Total Knee Arthroplasty at a Tertiary Care Hospital

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ABSTRACT

Background: Osteoarthritis (OA) of the knee is one of the leading causes of disability among adults older than 65 years. Total knee arthroplasty (TKA) is an excellent treatment option for individuals with symptomatic osteoarthritis in at least 2 of the 3 compartments of the knee and who have failed conservative treatment. Hence; the present study was conducted for evaluating the outcome of primary total knee arthroplasty. **Materials & Methods:** A total of 100 patients were analyzed. complete demographic and clinical details of all the patients were obtained. Only those patients were enrolled which were scheduled to undergo TKA. Inclusion criteria for the present study included patients more than 18 years of age, patients which were skeletally mature, and which were scheduled to undergo TKA. A Performa was made and details of radiographic findings of all the patients were recorded. All the patients underwent TKA under general anesthesia. Postoperative follow-up findings of all the patients were recorded. The Knee Injury and Osteoarthritis Outcome Score (KOOS) was used for follow-up assessment. Complications were assessed on follow-up. **Results:** While assessing KOOS, symptoms and stiffness score was 88.3 while pain score was 85.1. Function in daily life score was 81.3 while function in sports and recreation was 30.9. quality of life score was 82.8 while global KOOS was 76.2. Complications were encountered in 12 percent of the patients. Among these two patients, arthrofibrosis was seen in 5 patients while soft tissue infection, was seen in 3 patients. **Conclusion:** Good functional results were obtained among patients undergoing TKA with minimal complications rate.

Key words: Total Knee Arthroplasty, Osteoarthritis.

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INTRODUCTION

Osteoarthritis (OA) of the knee is one of the leading causes of disability among adults older than 65 years. Patients with OA experience significantly greater pain and functional deficits during normal daily activities, leading to a loss of productivity, and worsening quality of life. Although many conservative treatment modalities are available for the management of mild-to-moderate OA, end-stage arthritis of the knee is best managed with total knee arthroplasty (TKA).¹⁻³

Knee arthroplasty is a reconstruction of the knee joint. It is more commonly referred to as a total knee replacement and is a very reliable procedure with predictable results. Total knee arthroplasty (TKA) is an excellent treatment option for individuals with symptomatic osteoarthritis in at least 2 of the 3 compartments of the knee and who have failed conservative treatment. Additionally, partial knee

arthroplasty (PKA) is an excellent treatment option for individuals with symptomatic osteoarthritis localized to 1 compartment of the knee and who have failed conservative treatment. The primary goal of either surgery is durable pain relief with the improvement of functional status.³⁻⁵ In a large retrospective study, Singh and Lewallen¹²³ reported that patients undergoing TKA with a concomitant diagnosis of anxiety had higher knee pain scores at 2 and 5 years postoperatively. It was also demonstrated that patients diagnosed with depression had similar suboptimal pain scores at 5 years postoperatively.⁶ Hence; the present study was conducted for evaluating the outcome of primary total knee arthroplasty.

MATERIALS & METHODS

The present study was conducted to evaluate the outcome of primary total knee arthroplasty. A total of 100 patients were analyzed. complete demographic and clinical details of all the patients were obtained. Only those patients were enrolled which were scheduled to undergo TKA. Inclusion criteria for the present study included patients more than 18 years of age, patients which were skeletally mature, and which were scheduled to undergo TKA. A Performa was made and details of radiographic findings of all the patients were recorded. All the patients underwent TKA under general anesthesia. Postoperative follow-up findings of all the patients were recorded. The Knee Injury and Osteoarthritis Outcome Score (KOOS) was used for follow-up assessment. Complications were assessed on follow-up. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

RESULTS

100 patients underwent TKA. The mean age of the patients was 62.3 years. Out of 100 patients, 76 patients were males. Rural residence was seen in 69 percent of the patients. Mean BMI was 27.2 Kg/m². While assessing KOOS, symptoms and stiffness score was 88.3 while pain score was 85.1. Function in daily life score was 81.3 while function in sports and recreation was 30.9. quality of life score was 82.8 while global KOOS was 76.2. Complications were encountered in 12 percent of the patients. Among these two patients, arthrofibrosis was seen in 5 patients while soft tissue infection was seen in 3 patients.

Table 1: Demographic

Variable	Number	Percentage
Mean age (years)	62.3 years	
Males	76	76
Females	24	24
Rural residence	69	69
Urban residence	31	31
Mean BMI (Kg/m ²)	27.2	

Table 2: KOOS

KOOS	Mean	SD
Symptoms and stiffness	88.3	12.3
Pain	85.1	10.2
Function in daily living	81.3	10.9
Function in sports and recreation	30.9	5.8
Quality of life	82.8	11.7
Global KOOS	76.2	8.3

DISCUSSION

Total knee arthroplasty (TKA) is one of the most cost-effective and consistently successful surgeries performed in orthopedics. Patient-reported outcomes are shown to improve dramatically with respect to pain relief, functional restoration, and improved

quality of life. TKA provides reliable outcomes for patients suffering from end-stage, tri-compartmental, degenerative osteoarthritis (OA). While OA affects millions of Americans, the knee is the most commonly affected joint plagued by this progressive condition which is hallmarked by a gradual degeneration and loss of articular cartilage. Estimates project the annual incidence of symptomatic knee OA at 240 per 100,000 patients per year, and about 400,000 primary TKA surgeries are performed annually in the United States. The most common clinical diagnosis associated with TKA is primary OA, but other potential underlying diagnoses include inflammatory arthritis, fracture (post-traumatic OA and/or deformity), dysplasia, and malignancy.^{7- 9} There are 3 options for holding the knee replacement prosthesis in place: the prosthesis can be cemented, non-cemented or attached using a hybrid fixation procedure. The cemented procedure fixes the prosthesis to the bones with polymethylmethacrylate. The cement allows the prosthesis to fit perfectly to the bone, even if there are bone irregularities. A cemented knee replacement stabilizes rapidly, so patients can walk (i.e., bear weight on the joint) immediately following surgery. The disadvantage is that if the cement loosens, then bone may be ground away by movement of the joint, making subsequent revisions difficult.¹⁰

100 patients underwent TKA. Mean age of the patients was 62.3 years. Out of 100 patients, 76 patients were males. Rural residence was seen in 69 percent of the patients. Mean BMI was 27.2 Kg/m². While assessing KOOS, symptoms and stiffness score was 88.3 while pain score was 85.1. Function in daily life score was 81.3 while function in sports and recreation was 30.9. quality of life score was 82.8 while global KOOS was 76.2. Complications were encountered in 12 percent of the patients. Among these two patients, arthrofibrosis was seen in 5 patients while soft tissue infection, was seen in 3 patients. In a previous study, Woodland N et al evaluated the patient-reported outcomes following TKR in individuals aged ≥ 65 years. A systematic search of Ovid MEDLINE, EMBASE, and Cochrane library were performed to identify studies examining disease-specific or health-related quality of life outcomes following TKR. Qualitative evidence synthesis was performed. Eighteen studies with low (n = 1), moderate (n = 6), or serious (n = 11) overall risk of bias were included, with evidence syntheses derived from 20,826 patients. Four studies reported pain scales, showing improvement of pain from 6 months to 10 years postoperatively. Nine studies examined functional outcomes, showing significant improvements from 6 months to 10 years after TKR. Improvement in health-related quality of life was evident in six studies over 6 months to 2 years. All four studies examining satisfaction reported overall satisfaction with TKR results. TKR results in reduced pain, improved function, and increased quality of life for individuals aged ≥ 65 years. The improvement in

patient-reported outcomes needs to be utilised in conjunction with physician expertise to determine what would comprise clinically significant differences.¹¹

Van Egmond JC et al investigated patterns of functional recovery during the first 3 months after TKA and determined characteristics for non-responders in functional outcome. All primary TKA in a fast-track setting with complete patient-reported outcome measures (PROMs) preoperatively, at 6 weeks, and 3 months postoperatively were included. Included PROMs were Oxford Knee Score (OKS), Knee disability and Osteoarthritis Outcome Score Physical Function Short-Form (KOOS-PS), and EuroQol 5 dimensions (EQ-5D) including the self-rated health Visual Analogue Scale (VAS). Patients with improvement on OKS less than the minimal clinically important difference (MCID) were determined as non-responders at that time point. Characteristics between groups of responders and non-responders in functional recovery were tested for differences: they defined 4 groups a priori, based on the responder status at each time point. 623 patients were included. At 6 weeks OKS, KOOS-PS, and EQ-5D self-rated health VAS were statistically significant improved compared with preoperative scores. The mean improvement was clinically relevant at 6 weeks for KOOS-PS and at 3 months for OKS. Patient characteristics in non-responders were higher BMI and worse scores on EQ-5D items: mobility, self-care, usual activities, and anxiety/depression. Both statistically significant and clinically relevant functional improvement were found in most patients during the first 3 months after primary TKA.¹² Figueroa D et al retrospectively reviewed 191 total knee arthroplasties performed in 182 patients over an 8-year period, with a minimum follow-up of 2 years. The primary outcome measure was the rate of major complications. Secondary outcomes were minor complications, residual symptoms, level of satisfaction, and the Knee Injury and Osteoarthritis Outcome Score. Global complication rate was 15.5%, reintervention rate was 9.2%, and revision rate was 2.5%. Major and minor complications were seen in 9.2% and 5.1% of patients, respectively. Average Knee Injury and Osteoarthritis Outcome Score was 77 points (14-100), and 90% of patients reported satisfaction with the procedure. At 2-year follow-up, 45.8% of patients had some degree of range of motion limitations. Their results showed a medium-term follow-up complication rate comparable to those described in the literature.¹³

CONCLUSION

Good functional results were obtained among patients undergoing TKA with minimal complications rate.

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