



International Journal of Orthopaedics Sciences

E-ISSN: 2395-1958
P-ISSN: 2706-6630
IJOS 2020; 6(1): 1263-1266
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www.orthopaper.com
Received: 12-11-2019
Accepted: 15-12-2019

Dr. Rahul Kadam
Department of Orthopaedics,
MGM Medical College, Navi
Mumbai, Maharashtra, India

Dr. Ananya Sharma
Final Year Resident,
Department of Orthopaedics,
MGM Medical College, Navi
Mumbai, Maharashtra, India

Dr. Ankit Agrawal
Department of Orthopaedics,
MGM Medical College, Navi
Mumbai, Maharashtra, India

Dr. Abhay Challani
Department of Orthopaedics,
MGM Medical College, Navi
Mumbai, Maharashtra, India

Dr. Abhishek Gupta
Department of Orthopaedics,
MGM Medical College, Navi
Mumbai, Maharashtra, India

Dr. Sachin Pandey
Department of Orthopaedics,
MGM Medical College, Navi
Mumbai, Maharashtra, India

Dr. Deepak Jain
Department of Orthopaedics,
MGM Medical College, Navi
Mumbai, Maharashtra, India

Corresponding Author:
Dr. Ananya Sharma
Final Year Resident,
Department of Orthopaedics,
MGM Medical College, Navi
Mumbai, Maharashtra, India

Functional outcome of total knee arthroplasty in young rural patients <50 years of age

Dr. Rahul Kadam, Dr. Ananya Sharma, Dr. Ankit Agrawal, Dr. Abhay Challani, Dr. Abhishek Gupta, Dr. Sachin Pandey and Dr. Deepak Jain

DOI: <https://doi.org/10.22271/ortho.2020.v6.i1q.1992>

Abstract

Background: Total knee arthroplasty (TKA) is one of the most effective surgical interventions for pain relief and functional recovery in young patients with rheumatoid arthritis, ankylosing spondylitis, traumatic arthritis, osteoarthritis knee, hampering the daily activities in life. The encouraging TKA results have prompted a growth in TKA utilisation, particularly in younger patients and a move away from procedures such as osteotomy and UKA which have been associated with higher re-operation rates. Over the last 2 decades there has been an increasing tendency toward the use of TKA in young adults, with some countries reporting a 5-fold increase in the last 10 years.

Material and Method: This study was done on the patients who underwent total knee arthroplasty (37) at MGM medical college and hospital, Kamothe, Navi Mumbai. Out of 37 patients, 6 patients did not followed up at regular interval. Only 31 patients were included in the study (18 females and 13 males) fulfilling the inclusion and exclusion criteria. Total 50 knee were included in this study.

Results: This study includes 31 cases fulfilling the inclusion and exclusion criteria with total 50 knees undergoing TKA. The mean age was 46.5 years. The functional outcome was calculated using knee society score. The average knee society score was 70.5 after 6 month post TKA while it was 80.5 after 1 year with reduced pain upto 6 month and almost no pain after 1 year. Three patients were seen with MRSA positive results and were operated after been treated with mupirocin. Two patients showed superficial skin infection following TKA.

Conclusions: The total knee arthroplasty is one of the most successful and patient satisfactory surgical procedure in young patients relieving pain and daily activities in life as compared to old age patients undergoing TKA. In our study we have seen that it had provided the stability and promising result, by providing back the ability to carried out daily activities by own self after undergoing TKA in young patients who were facing problems in carrying out their daily activities by providing good outcomes as measured by knee society score as compared to older patients undergoing TKA.

Keywords: Knee, osteoarthritis, arthroplasty, functional outcome

Introduction

Total knee arthroplasty (TKA) is one of the most effective surgical method for pain relief and functional recovery in patients with advanced knee arthritis^[1].

Total knee arthroplasty (TKA) is an established treatment at the end stage of a arthritic knee joint. This operative treatment generally relieves pain, improves physical functions of patient, and has a high level of patient satisfaction carrying out daily activities^[2].

Total Knee Arthroplasty (TKA) is a highly effective surgical method for treating severe joint pain in arthritis of the knee.

Many of orthopaedic surgeons are not willing and slow decision making to perform TKA in younger patients due to the concern of high levels of activity that can lead to increasing wear and aseptic loosening. Technical challenges and complications associated with revisions are additional causes in concerning these patients^[3].

Total knee arthroplasty (TKA) is one of the most successful surgical intervention in severe knee arthritis showing excellent 15–20 year survival rates reported by many surgeons^[4].

It is widely used in the treatment of severe knee osteoarthritis, inflammatory arthritis, post traumatic arthritis, rheumatoid arthritis, ankylosing spondylitis, gout and other arthritic conditions^[5].

In the last 2 decades, an increasing tendency has been seen for the use of TKA in young adults, with few countries reporting a 5-fold increase in the last 10 years [6].

Young rural area patients were selected due to their high demand of physical activities as compared to urban population, arthritic knee is more commonly seen in these population.

Their lack of knowledge in preventing the arthritic knee by its less exposure to the damaging activities, increases the chance of damaging knee.

Source of data

Young rural area patients who underwent total knee arthroplasty in MGM hospital Kamothe

Type of study: Retrospective

Time of study: Five Years (2013 to 2018)

Method of collection of data

Total number of patients who underwent total knee arthroplasty during the study period was 37 patients. Out of which 6 did not followed up. Total 31 patients with 50 knees who underwent TKA data was collected.

Cases satisfying the inclusion criteria and exclusion criteria admitted in MGM hospital, kamothe, Navi Mumbai.

Methods

Inclusion criteria

1. Age <50 years
2. Rheumatoid arthritis
3. Post traumatic arthritis
4. Osteoarthritis knee
5. Ankylosing spondylitis.
6. Koch's knee under AKT for > 3 months

Part 1. Knee score (point)		Part 2. Function score (point)	
Pain		Walking	
None (50)		Unlimited (50)	
Mild/occasional (45)		>10 blocks (40)	
Mild (stairs only) (40)		5-10 blocks (30)	
Mild (walking and stairs) (30)		<5 blocks (20)	
Moderate (occasional) (20)		Housebound (10)	
Moderate (continual) (10)		Unable (0)	
Severe (0)		Stairs	
Total range of flexion (°)		Normal up and down (50)	
0-5 (1)	46-50 (10)	91-95 (19)	Normal up down with rail (40)
6-10 (2)	51-55 (11)	96-100 (20)	Up and down with rail (30)
11-15 (3)	56-60 (12)	101-105 (21)	Up with rail, down unable (15)
16-20 (4)	61-65 (13)	106-110 (22)	Unable (0)
21-25 (5)	66-70 (14)	111-115 (23)	Walking aids used
26-30 (6)	71-75 (15)	116-120 (24)	None used (0)
31-35 (7)	76-80 (16)	121-125 (25)	Use of cane/walking stick deduct (-5)
36-40 (8)	81-85 (17)		Two canes/sticks (-10)
41-45 (9)	86-90 (18)		Crutches or frame (-20)
Flexion contracture (if present) (°)		Final knee score is:	
5-10 (-2)		Grading for the KSS	
10-15 (-5)		Excellent (80-100)	
16-20 (-10)		Good (70-79)	
>20 (-15)		Fair (60-69)	
Alignment (varus & valgus) (°)		Poor (<60)	
0 (-15)	11 (-3)		
1 (-12)	12 (-6)		
2 (-9)	13 (-9)		
3 (-6)	14 (-12)		
4 (-3)	15 (-15)		
5-10 (0)	Over 15 (-20)		
Stability (maximum movement in any position)			
Anteroposterior (mm)			
<5 (10)			
5-10 (5)			
10+ (0)			
Mediolateral (°)			
<5 (15)			
6-9 (10)			
10-14 (5)			
15 (0)			

Fig 1: Knee Society Score [7].

Exclusion criteria

1. Age >50 years
2. Tumours
3. Infected knees

Period of follow-up

All patients who underwent total knee arthroplasty during study time period were followed up. We have taken data of patients who were fit in our inclusion criteria.

Parameters were recorded at each follow up

- Post operative at the time of suture removal
- After 6 months post TKA
- After 1 year post TKA.

Parameters for evaluation

1. Pain assessment
2. Functional outcome by using Knee Society Score [6].

Statistical tests

The collected data will be evaluated using appropriate statistical methods.

Result

This study was done on the patients admitted to orthopaedic ward at MGM medical college and hospital, kamothe, Navi Mumbai. Out of 37 patients, 6 patients did not followed up at regular interval, leaving only 31 patients included in the study (18females and 13males) fulfilling the inclusion and exclusion criteria with total 50 knees undergoing TKA. There were 13 patients who underwent bilateral TKA and 24 patients who underwent unilateral TKA. The mean age was 46.5years. The functional outcome was calculated using knee society score after 6 months and 1 year follow up. The average knee society score was 70.5 after 6 month post TKA while it was 80.5(72-89) after 1 year with reduced pain up to 6 month and almost no pain after 1 year. All patients underwent the procedure with the same Para patellar approach using tourniquets. All of the patients were started with knee physiotherapy with full weight bearing walking post operatively.

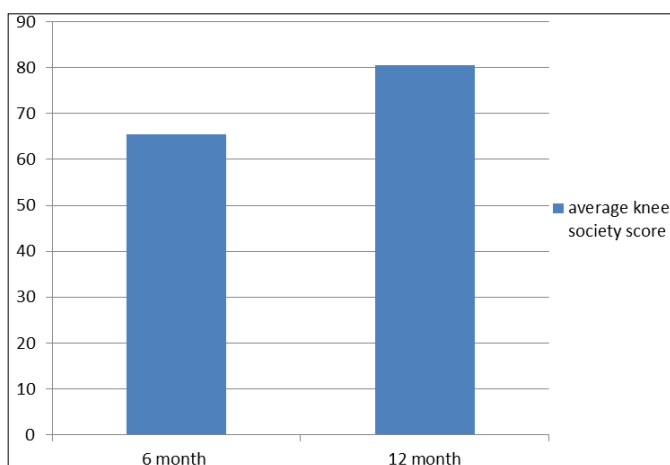


Fig 2: Average knee society score

Complications

Complications that can be seen following TKA can be Superficial skin infection, Deep wound infection, Implant loosening, Deep vein thrombosis, revision arthroplasty.

In our study, we have seen only 2 patients undergoing superficial skin infection following total knee arthroplasty (TKA).

Discussion

Baker *et al.* [8]. reviewed the data from the National Joint Registry for England and Wales: 71% of the young patients who underwent TKA perceived improvement of knee symptoms, pain relieve, but only 22% rated the results as 'excellent' depending to their satisfaction level.

Kim *et al.* [9] reported that in spite of the clear evidence of improvement after TKA in terms of restoration of routine physical activities and pain relief, level of patient satisfaction was moderate following TKA.

Kurtz *et al.* had seen the increasing rate young patients undergoing TKA by reviewing the National Inpatient Sample from 2006 and reported nearly 70,000 TKAs performed annually for patients younger than 55 years signifying increasing rate and success of TKA in young patients [10].

A systematic review of studies was performed before 2010, indicated that the outcomes of TKA were successful on a large among the younger patients, with substantial increases in both pain-predominated clinical activity scales and function based outcome scores [11].

Conclusion

Many studies have been reported over TKA. Most of the studies have shown good results with a good functional ability of a knee after TKA. Many of the studies have compared the patient satisfaction in between old and young patients undergoing TKA giving almost equal post op results. Many of studies had showed better results in old age patients.

In our study we have seen that all of the patients underwent the procedure with the same Para patellar approach under tourniquet and physiotherapy was started from next day of operation in young patients less than 50 years of age and showed good results and better quality of life with patients affording daily routine exercises along with recreational and heavy work load.

Clinical relevance

Total knee arthroplasty (TKA) is a surgical procedure of total knee joint replacement.

Its Clinicial relevance is the restoration of one's ability who has been challenged to perform even daily activities due to arthritic knee.

It has shown great outcomes with retaining of functional outcome of knee joint allowing one to carry out not only daily but also recreational and heavy workout.

Acknowledgement

I would like thank my head of unit, my guide, colleagues for their constant support and helping hands in making the study successful.

I also like to thanks MGM Hospital, orthopaedics department for their support.

Declarations

Funding: No Funding Sources

Conflict of interest: None Declared

Ethical approval: The study was approved by institutional ethics committee

References

1. Juni P, Reichenbach S, Dieppe P. Osteoarthritis: rational approach to treating the individual. *Best Pract Res Clin Rheumatol.* 2006; 20:721-740.
2. Hawker G, Wright J, Coyte P *et al.* Health-related quality of life after knee replacement. *J Bone Joint Surg Am.*

- 1998; 80(2):163-173.
3. Harrysson O, Robertsson O, Nayfeh J. Higher Cumulative Revision Rate of Knee Arthroplasties in Younger Patients with Osteoarthritis, *Clinical Orthopaedics and Related Research*. 2004; 421:162-168.
 4. Gill GS, Chan KC, Mills DM. 5- to 18-year follow-up study of cemented total knee arthroplasty for patients 55 years old or younger. *J Arthroplasty*. 1997; 12:49-54.
 5. Anderson JG, Wixson L, Tsai D, Stulberg SD, Chang RW. Functional outcome and patient satisfaction in total knee patients over the age of 75. *J Arthroplasty*. 1996; 11:831-40.
 6. Swedish knee Arthroplasty Register (SKAR), 2008.
 7. Insall JN, Dorr LD, Scott RD, Scott WN. Rationale of the Knee Society clinical rating system. *Clin Orthop Relat Res*. 1989; (248):13-4.
 8. Baker PN, Rushton S, Jameson SS, Reed M, Gregg P, Deehan DJ. Patient satisfaction with total knee replacement cannot be predicted from pre-operative variables alone: a cohort study from the National Joint Registry for England and Wales. *Bone Joint J*. 2013; 95:1359-1365.
 9. Kim SJ, Bamne A, Song YD, Kang YG, Kim TK. Patients still wish for key improvements after total knee arthroplasty. *Knee Surg Relat Res*. 2015; 27:24-33.
 10. Kurtz SM, Lau E, Ong K, Zhao K, Kelly M, Bozic KJ. Future young patient demand for primary and revision joint replacement: national projections from 2010 to 2030. *Clin Orthop Relat Res*. 2009; 467:2606-2612. DOI: 10.1007/s11999-009-0834-6.
 11. Keeney JA, Nunley RM, Wright RW, Barrack RL, Clohisy JC. Are younger patients undergoing TKAs appropriately characterized as active? *Clin Orthop Relat Res*. 2014; 472(4):1210-1216.