

## ORIGINAL ARTICLE

# A Retrospective Analysis of Patients Undergoing Total Knee Replacement Using Knee Society Score

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### Abstract

Total knee replacement is one of the commonest done elective orthopaedic surgical procedures in patients with osteoarthritis. There is scant data available of Total Knee Replacement in Indian population. 60 patients undergoing total knee arthroplasty were identified from the records. These patients had Posterior stabilized total knee replacement with patellar resurfacing. Their Knee Society scores were documented pre operatively, post operatively and at 6 months post operatively. This data was analyzed to know the functional evaluation of Total Knee Replacement. Data measured was: their age at surgery, knee functional scores and knee clinical score. On comparison with pre operative score there was significant improvement in the patients' Average pre op knee clinical score is 28.13. In this study this improved to an average post op score of 95.38. Average pre op knee functional score was 41.83 in this study which improved to average post op score of 83.17. Post operative satisfaction is quite high with 86.7 % patients having excellent knee clinical score. 89.7 % patients had good and excellent functional scores. The study shows that Total knee replacement is an effective way of improving quality life in patients with end stage arthritis. Knee society scores by virtue of its two components give comprehensive review of clinical parameters and function.

**Keywords:** Total knee replacement, posterior stabilized, knee society score

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### Introduction

Total knee replacement is commonly done surgery for end stage arthritis of knee. The results of TKR are predictable in majority of cases with increasing geriatric population; number of patients with end stage arthritis is increasing. This population is often associated with other co-morbid condition along with age, which makes the results of TKR less predictable. There is little data in Indian literature as regards to results of TKR.

Osteoarthritis is thought to be the most prevalent chronic joint disease (1). The concept of improving knee joint function by modifying the articular surfaces has received attention since the 19th century. Total Knee Arthroplasty (TKA) is now a reliable treatment for severe arthritis (2). This is a study of sixty patients; the

clinical, functional outcome of Total Knee Replacement was seen.

Aim and Objectives of the study are to study the clinical, functional outcome in a 60 patients of primary Total Knee Replacement in patients with osteoarthritis using Knee Society Score to compare the Knee functional Score and Knee clinical Score pre-operatively and post-operatively.

### Materials and Methods

The pre-operative and post-operative notes of these patients are obtained from MRO section and specialty OPD departmental registers maintained by Dept. of Orthopaedics. As per the departmental protocol these patients were followed regularly in OPD and their knee society scores were calculated and noted into registers pre operatively, post operatively and at

6 months. While doing the study Data was anonymised and personal details were not revealed. This is a hospital based cross-sectional study. The data was entered in Microsoft Excel 2007 and analyzed using SPSS 16.0 version. Following data was recorded from departmental records and MRO section

### **Pre-operative clinical assessment**

Detailed history of all patients was noted. Notes of their clinical and functional assessment the Knee Society Score (3). Any limb length discrepancies were noted. Presence of any hip and foot deformities was noted. The extensor mechanism was assessed for any quadriceps contractures. The knee deformities were examined for any fixed varus or valgus deformities or presence of any fixed flexion contracture.

### **Radiographic assessment**

Standard guidelines were utilised to get knee radiographs – standing anteroposterior view and a lateral view and a skyline view of the patella (4). Any collateral ligament laxity, subluxation of tibia, presence of osteophytes, any bone defects in the tibia and femur and the quality of bone is assessed. Sizing of the femoral and tibial components can also be done.

### **Calculating Knee Society Score (3)**

Knee Society score consist of two separate assessments. Knee clinical score and Knee functional score

Knee clinical score contains parameters such as varus -valgus laxity, flexion contracture, extensor lag, range of motion where specific points are allotted to each value. Knee functional score consists of functional aspects of lower limbs such as walking , stair negotiation, use of walking aid with each category allotted some score

### **Operative procedure**

Operative procedure performed was primary total knee replacement done using median parapatellar approach under tourniquet preferably under spinal and epidural anaesthesia. Implant used is posterior stabilized total knee prosthesis. Patellar resurfacing has been done in all cases. Wound closed in layers over negative suction drain.

### **Post op protocol**

The patients knee dressing was done in

compression, Long knee brace and DVT stocking applied and foot/calf pump applied immediately post operatively. The patients were started on IV antibiotics and DVT prophylaxis in the form of subcutaneous enoxaparin started next day.

1<sup>st</sup> post op day, patient was taught static quadriceps exercises allowing to stand in limits of pain with walker support.

2<sup>nd</sup> post op day, the dressing was debulked and wound inspected. Knee bending started Patient was made to walk full weight bearing within the limits of pain with knee immobilizer used and advised to continue static quadriceps exercises.

3<sup>rd</sup> post op day, walking with walker in limits of pain and patient was taught dynamic quadriceps exercises, toilet (commode) training done.

IV antibiotics were given for the first 48 hours post op stopped after removal of foleys. All iv drugs stopped , oral medication started, IV cannula removed, subcutaneous enoxaparin given for 5days post op, DVT pump given for same time , at time on discharge 5th day patient given training for stairs climbing and getting down with walker support. Oral anticoagulation for given for next 2 weeks.

12<sup>th</sup> post op day, sutures were removed and patient was advised to continue regular physiotherapy.

## **Results**

The majority of the patients were from the age group 60-65 years with accounts for 40% of the patients in our study. The youngest was 60 years of age and oldest was 78 years of age. Mean age was 67 years. The female predominance in study was in the ratio 3:2 in our study, accounting for 60% of the patients. Right side was operated more commonly than left (Left side 18 (30%), right side 42 (70%).

86.7 percent (52) patients had excellent knee clinical score followed by good score 6 (10%) and poor score 2 (3.3%). Two patients developed infection they were not assessed post operatively .Average pre op knee clinical score is 28.13. In this study this improved to an average post op score of 95.38 (Table- 1).

In this study patients 53% had excellent, 37 % had good functional result. 7% patient had fair and 3% patient had -poor result. Reason for poor

result in these patients was infection. Average pre op knee functional score was 41.83 in this

study which improved to average post op score of 83.17 (Table- 3).

**Table- 1: Data of Actual Scores**

	N	Mean	Median	Mode	SD	Max	Min
Pre op	60	28.13	27.50	20	7.54	14	39
Post op	58	95.38	97.00	98	5.5	80	99

**Table- 2: Knee functional score (post operative)**

	Frequency	Percent
Excellent	32	53
Good	22	36.7
Fair	4	6.7
Poor	2	3.3
Total	60	100

**Table- 3: Data of Actual Scores**

	No.	Mean	Median	Mode	SD	Min	Max
Pre-op	60	41.83	45.00	45	9.33	20	50
Post-op	58	83.79	90.00	90	8.62	60	90

## Discussion

Total Knee Arthroplasty is generally an effective procedure and is associated with substantial functional improvement. Patients with osteoarthritis who were having difficulty mobilizing because of degenerative arthritis found good relief after Total Knee Replacement. There was a substantial relief of joint pain, increased mobility, correction of deformity and an improvement in the quality of life of the patients following Total Knee Replacement.

With the varied amount of implant designs available the posterior cruciate substituting design was found to be effective (5). In this study 60 patients who met the inclusion criteria, all the knees were operated using a Posterior cruciate substituting design.

Robert L Barrack et al. found that total knee arthroplasty with retention of the patella yielded clinical results that were comparable with those after total kneearthroplasty with patellar resurfacing (7). Robert L Barrack et al. concluded that postoperative anterior knee pain is related either to the Component design or to the details of the surgical technique, such as component rotation, rather than to whether or not the patella is resurfaced.(8) Nutton concluded that knee function was not improved by patella resurfacing when compared to a matched group of patients without

resurfacing.(9)

In our study proportion of female patient was 60% and male patients were 40%. This is in concordance with the other studies such as Zaki SH et el (10) which had male to female ratio 37.9 % and 62.1%. while N Hunter (11) had male to female ratio of 47.6 % to 52.4 %.

Commonest age group operated in our study was 60-65 % . Other studies also showed that mean age for opting for this surgery is in the sixth decade with N Hunter et el (11) study had mean age 66.7 yr. Study conducted by Zaki SH et el (10) had higher mean age of 70 yrs.

Total knee arthroplasty using posterior stabilised knee design improved the functional ability of the patients and ability of the patients to get back to pre trauma activity such as normal up and down stairs, no pain to occasional pain, unlimited walking etc. Total knee arthroplasty lead to improved range of knee flexion 100 to 130 degree.

This is indicated by our study in which 86.7 % patients had excellent knee clinical score and 89.7 % patient had good knee functional score. This grading are concurrent with other studies such as install et el (12) which had 86.7 % excellent knee clinical scores and 95.5 % good or excellent clinical score. While Scott (13) had 83% excellent knee clinical score and 94% good or excellent functional score.

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## Conclusion

Total knee replacement is an effective method of improvement in function in patient with osteoarthritis of knee. Knee society score is effective way of functional assessment by using its two domains- Knee Clinical Score and Knee Functional Score.

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