

Outcome of Total Knee Replacement in Terms of Knee Society and Functional Score

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ABSTRACT

Objective: To evaluate the knee society and functional score in pre-and post-operative patients of Total Knee Replacement.

Method: A cross sectional, observational study comprising of 40 patients evaluated at 1 year follow up done by single surgeon in same setup from July 2015 to June 2016. Data taken from Pakistan national joint registry (PNJR). Knee society score evaluated pre-operative and post-operative at 1 year follow up.

Result: In our study total of 40 patients were analyzed which comprises of 30% (n= 12) male and 70% (n= 28) female patient with age range of 40 to 70 years with mean age of 55.45 ± 9.25 years. Out of 40, 90 % patients (n=36) had osteoarthritis and 10 % (n= 4) had rheumatoid arthritis. The average pre-operative knee society score is 51.07 ± 13.3 and functional pre-operative score is 42.87 ± 16.4 while post op knee society score is 91.75 ± 3.44 and functional score post op is 87.32 ± 6.33 .

Conclusion: Total Knee Replacement is the best modality for arthritis of knee as the scores in terms of knee society and functional score has improved.

Keywords: Total knee Replacement, Osteoarthritis, Rheumatoid arthritis, Knee society score, Pakistan national joint registry.

This article may be cited as:

INTRODUCTION

Knee arthritis remains a big problem over an era but total knee replacement (TKR) has revolutionized treatment for knee pain due to arthritis. TKR improve quality of life by improving pain and mobility in about 90 % patients [1,2].

Different rating scales were used to grade the success of TKR. However, there is marked difference between patient and surgeon's evaluation of outcome. In cases where patient is not satisfied with the result such as that patient and surgeons may have different opinion and definition regarding best result or outcome of the procedure. Patient may not want to disappoint surgeon's due to which they may not tell their actual problem and if he told the problem, the surgeon may not comprehend the true nature of pain and patient

dissatisfaction. These scoring systems (including clinician rated outcome measures (CROM)) gave you symptoms, functional outcome and clinical examination into one score and these scores mask the opposing dimensions like patient had pain but improved range of motion and function stability and muscle power [3,4].

Measurement of Total Knee replacement represented advancement in the result evaluation of TKR. However, the development of outcomes movement and widespread adoption of psychometric principles to develop assessment tools new standards have taken place for measuring and evaluating clinical scoring systems. Knee society score is user friendly and concise. knee society functional score demonstrates good reliability [5,6,7].

Install 1989, introduce the original knee society scoring system. At that times patients undergone Total knee replacement were sedentary, and hence evaluation of knee function on basis patients walking and climbing stairs may have been appropriate. Nowadays as patients expecting to live more than

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twenty years after Total Knee Replacement, it is essential that every patient to remain actively involved in recreational and functional routine activities far beyond the sedentary life style after the procedure of total knee replacement [8,9].

This study was carried out to know the pre-operative and post-operative Knee society score and functional outcome of total knee Replacement in patients of rheumatoid arthritis and osteoarthritis score in our setup.

METHOD

A cross sectional, observational study was carried out from July 2015 to June 2016, Total knee Replacement was carried out in knee arthritis patients including both osteoarthritis and rheumatoid arthritis. The data was collected from Pakistan national joint registry (PNJR). All the patients having grade III or advance osteoarthritis and rheumatoid arthritis of one or both knees, having pain sufficient to interfere in daily activities and who were willing for Total Knee replacement were included. [10,11,12,13].

All patients who are unfit for surgery due to other causes like cardiac or other systemic moribund conditions and who were unwilling to undergo TKR [10-13].

In PNJR patient demographic details like age, sex, height, diagnosis and comorbid were documented and knee society score calculation requirement like range of motion and other assessment were documented in registry. All procedures documented were done by same surgeon in same operation theater environment and same protocol by applying tourniquet midline incision and parapataller approach were done under combined spinal epidural anesthesia. Standard femoral and tibia implants were used. Patellar implant was not used in any case.

Cefepirone plus sulbactam and linezolid were used as antibiotics. Epidural analgesia with later addition of IV analgesia after 48 hours and then oral analgesia used. Chemical and mechanical thromboprophylaxis was used.

The patients were ambulated on first post-operative day under physiotherapist supervision. Skin stitches removed at day 14 and regular follow up at 6 weeks, 12 weeks, 6 months and 12 months done. At 1 year complete review of patients done for calculation of knee society score. The result is shown in graphs, tables and percentages. Mean \pm standard was calculated for variables like age, knee society pre-operative and post-operative score deviation. Data was analyzed by SPSS version 21.0.

RESULT

Out of 40 patients 70% (n= 28) are female and 30% (n= 12) were male. Age ranges between 40-70 years with mean age 55.45 ± 9.25 . In these 40 patients, 90 % (n=36) had osteoarthritis and 10 % (n= 4) were diagnosed as having rheumatoid arthritis however, in above patients 67.5% (n=27) were hypertensive, 30%(n= 12) were diabetic and 10% (n=4) had hepatitis.

ASA (American society of anesthesiologists) grade I was 15% (n= 6) patients, 77.5% (n=31) were grade II and 7.5% (n=3) patients were ASA grade III. Ambulation status were like 29 were community ambulant, 7 patients were home ambulant and 4 were non-ambulant.

Patients follow up were on 2 weeks, 6 weeks, 3 months, 6 months and 1 year. At 1 year follow up the knee society score mean and SD was 91.75 ± 3.44 and functional score mean and SD was 87.32 ± 6.33 . Functional score of 29 patients were 81–100 (excellent score) and 11 patients had 70–80 (good score).

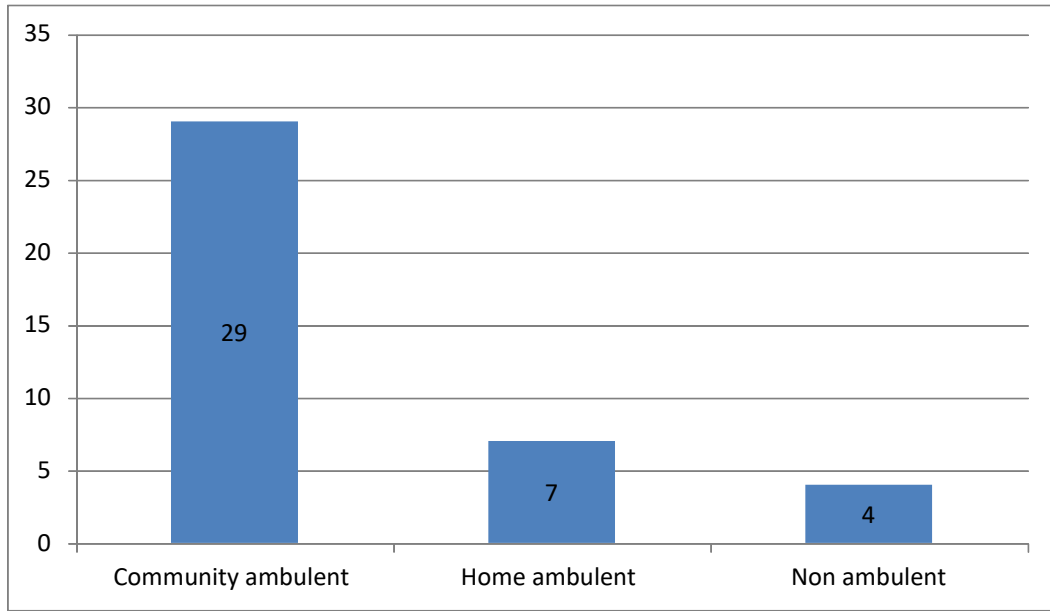
Functional score pre-operative vs post-operative:

Functional score				
		Pre-operative	Post-operative	
	Mean \pm SD	42.87 ± 16.4	87.32 ± 6.33	
Functional score	81 – 100 (Excellent)	70 – 80 (Good)	60 – 69 (Fair)	Below 60 (Poor)
	N			
Pre-operative	0	03	07	30
Post-operative	29	11	-	-

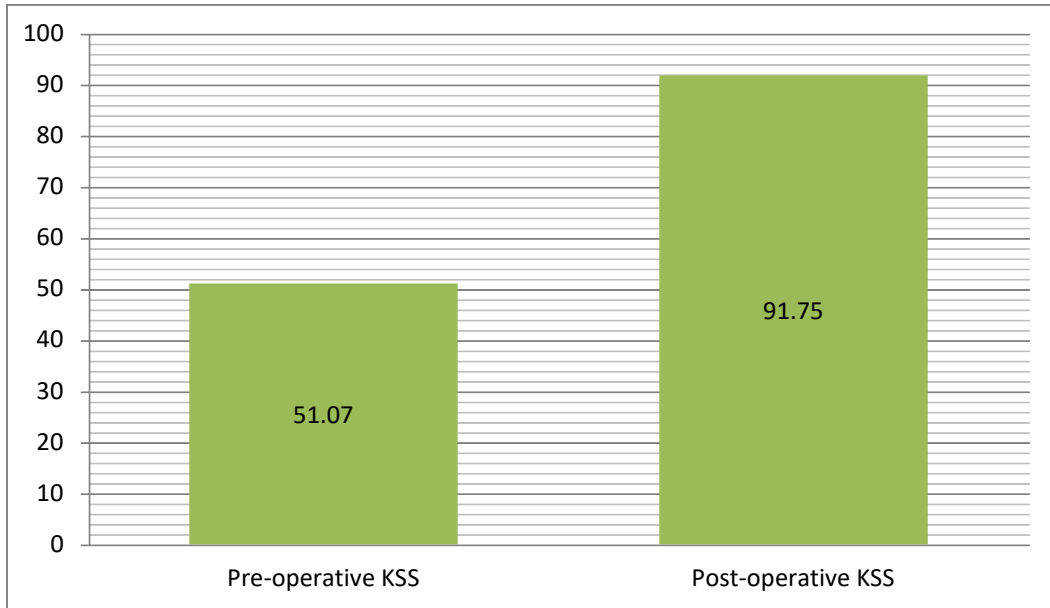
Age and comorbid:

Age	
Mean \pm standard deviation	55.45 \pm 9.25
Comorbids	
	N %
HTN	27 (67.5 %)
DM	12 (30 %)
HEPATITIS	4 (10 %)

Ambulation status:



Outcome regarding knee society score:



DISCUSSION

Total Knee Replacement is an effective treatment for arthritic knees and had excellent functional outcome. Those patients who have difficulty in mobilization due to arthritic changes had good functional outcomes after Total Knee Replacement. There was an improvement in quality of life of patients like pain relief, deformity correction, and increased mobility following total knee arthroplasty [14].

While determining satisfaction of total knee Replacement the role of expectation is well documented as TKR is performed for both joint functional improvement and pain relief. Each patient individual goals with respect to outcome like function and activity improvement will basically determine the extent to which patient outcome is successful [15,16,17].

Gill 1995 in their study compare clinical results of osteoarthritis (37 knees) and rheumatoid arthritis (30 knees) with 9.9 years follow up. All patients had good and excellent result in order of stability, knee range of motion and pain relief [18]. In our study patient, functional outcome and knee score improved and patient had excellent outcome in 29 patients (72.5%) and 11 patients (27.5%) had good functional score.

Total knee Replacement outcome are assessed with knee society score. In our study, the patient evaluation on clinical and functional improvement assessed by KSS, significant improvement was observed for both knee society score and knee functional score at every interval. Farahini 2012 also conducted similar study in which significant improvement in knee society score was shown [19]. Another study done by Varatapalli 2015 also showed increase in knee society score after Total Knee Replacement [20].

Kadam RV 2016 studied showed mean pre-operative knee society score of 49.40 ± 13.79 which increased post-operative KSS of 86.08 ± 5.64 at 6 months follow up. In our study, pre-operative KSS was 51.07 ± 13.3 increased to post-operative 91.75 ± 3.44 at 1 year follow up. In same study Kadam 2016 showed that functional score in their patients is 80 % had excellent, 12.5 % patient had good and 5 % had fair outcome [21]. In our study, functional score in 72.5 % had excellent result and 27.5 % had good result.

As patients with arthritis undergo TKR, actual assessment of the procedure outcomes must be done to match patient's desires and expectations.

CONCLUSION

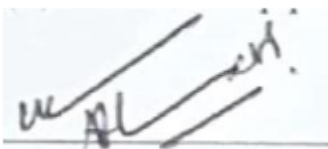
Total knee Replacement is a safe surgery. The functional and clinical outcome of patient improves after total knee Replacement. Patient quality of life like pain relief and mobility improves as reflected in the scoring system like Knee society and functional score.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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