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Original Research

Patellar resurfacing and non-resurfacing in patients undergoing bilateral TKA

Abhisar Katiyar

Associate Professor, Department of Orthopaedics, Major S D Singh Medical College, Farukhabad, Uttar Pradesh, India

ABSTRACT:

Background: Total knee arthroplasty (TKA) is the recommended treatment to correct deformity, relieve pain, and restore normal biomechanics in osteoarthritis of the knee joint. The present study was conducted to compared patellar resurfacing and non-resurfacing in patients undergoing bilateral TKA. **Materials & Methods:** 80 patients selected for bilateral simultaneous TKA with posterior stabilized Hi flex fixed bearing knee were divided into two groups ie. group I patients underwent resurfacing and group II underwent non- resurfacing of patella. Patients were assessed using Knee Society Score (KSS), Modified Samsung Medical Centre Score (MSMCS), Feller patellar score. **Results:** KSS pain was 2.04 in group I and 2.81 in group II, KSS function was 3.12 in group I and 4.26 in group II, MSMCS pain was 1.46 in group I and 1.68 in group II, MSMCS function was 3.25 in group I and 3.62 in group II, Feller patellar score was 2.83 in group I and 3.21 in group II, congruence angle was 2.31 in group I and 2.51 in group II and patellar tilt angle was 2.07 in group I and 2.06 in group II. The difference was non- significant (P> 0.05). **Conclusion:** Clinical and radiological parameters were comparable in both groups. Clinical outcomes, patient satisfaction, revision rates and complication rates were similar in the resurfacing and nonresurfacing groups in a short-term follow up.

Key words: Patella, radiological, Total knee arthroplasty

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Corresponding author: Abhisar Katiyar, Associate Professor, Department of Orthopaedics, Major S D Singh Medical College, Farukhabad, Uttar Pradesh, India

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INTRODUCTION

Total knee arthroplasty (TKA) is the recommended treatment to correct deformity, relieve pain, and restore normal biomechanics in osteoarthritis of the knee joint. There is still controversy about the ideal treatment for patellofemoral joint arthritis, i.e., whether to resurface patella or not. Anterior knee pain (AKP) is a common reason for patient dissatisfaction, reportedly seen in up to 5%–47% of cases post-primary TKR.[1]

The outcome indicators such as Knee Society Score (KSS), function score of KSS, range of motion (ROM), anterior knee pain (AKP) postoperative and the ratio of reoperation are different in various studies.[2] The different outcomes of previous studies provide the basis for different choices of patellar resurfacing or not. One of the controversial topics among arthroplasty surgeons is resurfacing of the patella.[3,4] Three basic strategies have evolved as follows: (i) always resurface patella, (ii) never resurface, and (iii) selectively resurface patella. Proponents of selective resurfacing patella base their decisions on patient-related and prosthesis-related factors of preoperative weight, AKP, deformity, radiographic changes, quality of the remaining patellofemoral cartilage, intraoperative tracking, and the feasibility of patellar resurfacing. In a long-term follow-up, patellar resurfacing might make a difference of KSS. While in other aspects, the benefit of patellar resurfacing was limited.[5] The present study was conducted to compared patellar resurfacing and non-resurfacing in patients undergoing bilateral TKA.

MATERIALS & METHODS

This study consisted of 80 patients selected for bilateral simultaneous TKA with posterior stabilized Hi flex fixed bearing knee. All were enrolled once they agreed to participate with their written consent. Ethical approval was obtained also.

Data such as name, age, gender etc. was recorded. The patients were divided into two groups ie. group I patients underwent resurfacing and group II underwent non- resurfacing of patella. In non-resurfacing group, patellaplasty was done. Patients were assessed using Knee Society Score (KSS), Modified Samsung Medical Centre Score (MSMCS), Feller patellar score. Radiological evaluation was performed at 1 year using congruence angle and patellar tilt angle. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	Resurfacing	Non- resurfacing
M:F	22:18	23:17

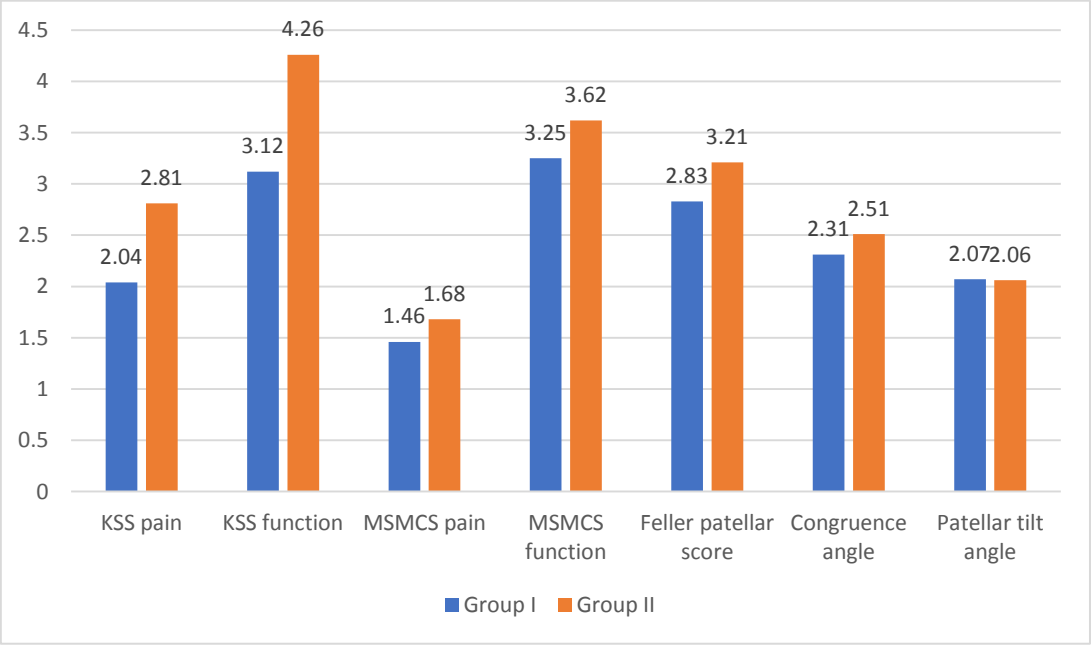
Table I shows that there were 22 males and 18 females in group I and 23 males and 17 females in group II.

Table II Comparison of clinical and radiological parameters

Parameters	Group I	Group II	P value
KSS pain	2.04	2.81	0.91
KSS function	3.12	4.26	0.80
MSMCS pain	1.46	1.68	0.73
MSMCS function	3.25	3.62	0.92
Feller patellar score	2.83	3.21	0.95
Congruence angle	2.31	2.51	0.83
Patellar tilt angle	2.07	2.06	0.97

Table II, graph I shows that KSS pain was 2.04 in group I and 2.81 in group II, KSS function was 3.12 in group I and 4.26 in group II, MSMCS pain was 1.46 in group I and 1.68 in group II, MSMCS function was 3.25 in group I and 3.62 in group II, Feller patellar score was 2.83 in group I and 3.21 in group II, congruence angle was 2.31 in group I and 2.51 in group II and patellar tilt angle was 2.07 in group I and 2.06 in group II. The difference was non- significant (P> 0.05).

Graph I Comparison of clinical and radiological parameters



DISCUSSION

Total knee arthroplasty (TKA) is one of the most common treatments for patients suffered knee arthritis. Nevertheless, the management of patella during TKA operation still remains controversial.[6] In previous literature reports, there are 3 strategies adopted by different surgeons: patellar resurfacing, patellar non-resurfacing and selective resurfacing. But no consensus on the best management has been reached. Despite advances in design and surgical techniques, the reported rates of AKP in the patellar resurfacing group is 0%–47% and in the non-resurfacing group is 0%–43%.[7] Studies have concluded that irrespective of the management of patella approximately 10% of the patients will still have AKP after TKA. Another complication seen with

patellar resurfacing is patellar clunk syndrome.[8] There are various etiologies for patellar clunk syndrome, including the high position of the patellar component, inadequate synovial tissue debridement at the upper pole of patella, abnormal patellar tilt and tracking, joint line alteration of 8 mm or more, etc.[9] The present study was conducted to compared patellar resurfacing and non-resurfacing in patients undergoing bilateral TKA.

In present study, there were 22 males and 18 females in group I and 23 males and 17 females in group II. Agarwal et al[10] in their study 60 patients undergoing bilateral simultaneous TKA (120 knees) with posterior stabilized Hi flex fixed bearing knee. The patients were allocated to the two groups of resurfacing versus non-resurfacing of patella. In non-resurfacing group, patellaplasty was done. Patients were assessed using Knee Society Score (KSS), Modified Samsung Medical Centre Score (MSMCS), Feller patellar score. Radiological evaluation was performed at 1 year using congruence angle and patellar tilt angle. Mean follow up was 19 months (range 12–25 months). Mean KSS, MSMCS, Feller patellar scores in resurfacing group were 82.67, 10.68, and 25.97, respectively and in non-resurfacing group were 82.93, 10.48, and 24.90, respectively. Mean congruence angle in resurfacing group was −12.83° and in non-resurfacing group was −12.383° (P = 0.917) and mean patellar tilt angle in resurfacing is 8.07 and non-resurfacing group is 7.97 (P = 0.873).

We observed that KSS pain was 2.04 in group I and 2.81 in group II, KSS function was 3.12 in group I and 4.26 in group II, MSMCS pain was 1.46 in group I and 1.68 in group II, MSMCS function was 3.25 in group I and 3.62 in group II, Feller patellar score was 2.83 in group I and 3.21 in group II, congruence angle was 2.31in group I and 2.51 in group II and patellar tilt angle was 2.07 in group I and 2.06 in group II. Swedish Knee Replacement Register in a report of 27,372 TKA operated between 1981–1995, concluded that patient satisfaction was more in resurfacing group, but the benefit of patellar resurfacing diminished over time. Various other studies have also reported no significant difference in terms of AKP or patient satisfaction between the two groups.[11]

In a retrospective study by Seo et al., the authors have found no association between the severity of the patellar articular defect and resurfacing in terms of clinical and functional outcomes. Meantime between primary arthroplasty and secondary patellar resurfacing varied from 30.9–112 months.[12]

CONCLUSION

Authors found that clinical and radiological parameters were comparable in both groups. Clinical outcomes, patient satisfaction, revision rates and complication rates were similar in the resurfacing and nonresurfacing groups in a short-term follow up.

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