ORIGINAL RESEARCH

Patellar resurfacing and non-resurfacing in patients undergoing bilateral total knee arthroplasty

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ABSTRACT

Background: When treating end-stage osteoarthritis (OA) of the knee, total knee arthroplasty (TKA) is frequently used. The present study compared patellar resurfacing and non-resurfacing in patients undergoing bilateral total knee arthroplasty. **Materials & Methods:**72 patients scheduled fortotal knee arthroplasty of both genderswere divided into2 groups of 36 each. In group I, patients underwent resurfacing and group II patients underwent non- resurfacing of patella. During patellar resurfacing, the damaged surface of the patella was removed and replaced with metalimplant. Parameters such as Knee Society Score (KSS), Modified Samsung Medical Centre Score (MSMCS), Feller patellar score were recorded. **Results:** Group I had 20 males and 16 females and group II had 18 males and 18 females. Congruence angle was 2.31 degrees in group I and 2.58 degrees in group II. Patellar tilt angle was 2.01 degrees in group I and 2.15 degrees in group II. MSMCS pain was 1.45 in group I and 1.60 in group II, MSMCS function was 3.26 in group I and 3.59 in group II, KSS pain was 2.09 in group I and 2.82 in group II, KSS function was 3.14 in group I and 4.23 in group II. Feller patellar score was 2.83 in group I and 3.23 in group II. The difference was non- significant (P> 0.05). **Conclusion:** Both groups' clinical and radiological parameters were similar. Therefore, in patients undergoing bilateral total knee replacement, patellar resurfacing as well as non-resurfacing, can be done.

Key words: Arthritis, Patellar resurfacing, total knee arthroplasty

INTRODUCTION

When treating end-stage osteoarthritis (OA) of the knee, total knee arthroplasty (TKA) is frequently used. However, orthopaedic surgeons are still unsure about when patellar resurfacing is appropriate for this treatment. At the moment, the surgeon's preference, background, and training still play a major role in the decision to undergo patellar resurfacing.[1,2] For patients with osteoarthritis (OA), some surgeons favor selective non-resurfacing of the patella, while others support routine patellar resurfacing for more consistent outcomes.[3] Some authors have advocated for the non-resurfacing of patella approach during total knee arthroplasty (TKA) due to the possibility of patellar fracture resulting in patellar resurfacing and the difficulty in treating the resurfaced patella at revision.[4]Patellar resurfacing may be performed for a variety of indications including patient age, weight, patellar anatomy, the condition of the patella articular cartilage, presence of inflammatory arthritis, radiographic findings, and preoperative anterior knee pain.[5]

Numerous studies use different outcome measures, such as the Knee Society Score (KSS), function score of KSS, range of motion (ROM), anterior knee pain (AKP) after surgery, and the reoperation ratio. Different decisions about whether or not to have patellar resurfacing are based on the disparate findings of earlier research.[6]Some surgeons always resurface the patella whilst others never do. Proponents of patellar resurfacing claim that if not resurfaced, 25% of patients develop chronic anterior knee pain with poor outcomes and dissatisfaction.[7,8]The present study compared patellar resurfacing and non-resurfacing in patientsundergoing bilateral total knee arthroplasty.

MATERIALS & METHODS

The present study was conducted on72patients scheduled fortotal knee arthroplasty of both genders.

All patients gave their written consent for participation in the study.

Data such as name, age, gender etc. was recorded. The patients were divided into2 groups of 36 each. In group I, patients underwent resurfacing and group II patients underwent non- resurfacing of patella. A single orthopaedic surgeon performed all procedures. During patellar resurfacing, the damaged surface of the patella was removed and replaced with metal implant. Parameters such as Knee Society Score (KSS), Modified Samsung Medical Centre Score (MSMCS), Feller patellar score were recorded in both groups. Radiological evaluation was performed at 1-yearfollow-up. 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 (36)	Group II (36)
Method	Resurfacing	Non- resurfacing
M:F	20:16	18:18

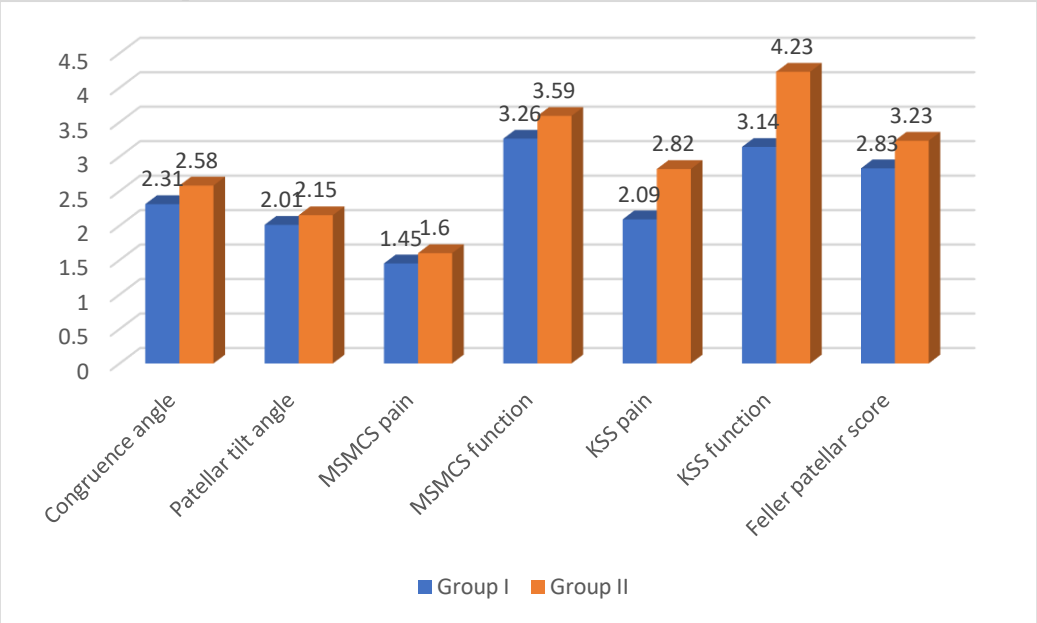
Table I shows that group I had 20 males and 16 females and group II had 18 males and 18 females.

Table II Assessment of parameters

Parameters	Group I	Group II	P value
Congruence angle	2.31	2.58	0.81
Patellar tilt angle	2.01	2.15	0.92
MSMCS pain	1.45	1.60	0.94
MSMCS function	3.26	3.59	0.86
KSS pain	2.09	2.82	0.93
KSS function	3.14	4.23	0.04
Feller patellar score	2.83	3.23	0.93

Table II, graph I show that congruence angle was 2.31 degrees in group I and 2.58 degrees in group II. Patellar tilt angle was 2.01 degrees in group I and 2.15 degrees in group II. MSMCS pain was 1.45 in group I and 1.60 in group II, MSMCS function was 3.26 in group I and 3.59 in group II, KSS pain was 2.09 in group I and 2.82 in group II, KSS function was 3.14 in group I and 4.23 in group II. Feller patellar score was 2.83 in group I and 3.23 in group II. The difference was non- significant (P> 0.05).

Graph I Assessment of parameters



DISCUSSION

The decision to resurface the patella is subject to ongoing debate within the medical community. Proponents argue that resurfacing can improve outcomes by reducing pain and improving joint function.[9,10] However, opponents suggest that complications associated with patellar resurfacing, such as fracture or instability, may outweigh the potential benefits.[11,12]Recovery from patellar resurfacing is generally part of the overall recovery process after total knee replacement. Physical therapy and rehabilitation are crucial components of the

recovery period, helping patients regain strength, flexibility, and function in the knee joint.[13,14,15]The present study compared patellar resurfacing and non-resurfacing in patientsundergoing bilateral TKA.

We found that group I had 20 males and 16 females and group II had 18 males and 18 females. Wood et al[16] in their study 220 total knee arthroplasties in 201 patients were randomly assigned to be performed with either resurfacing or retention of the patella. Fifteen (12%) of the 128 knees without patellar resurfacing and nine (10%) of the ninety-two knees with patellar resurfacing underwent a revision or another type of reoperation related to the patellofemoral articulation. At the time of the latest follow-up, there was a significantly higher incidence of anterior pain in the knees that had not had patellar resurfacing.

We observed that congruence angle was 2.31 degrees in group I and 2.58 degrees in group II. Patellar tilt angle was 2.01 degrees in group I and 2.15 degrees in group II. MSMCS pain was 1.45 in group I and 1.60 in group II, MSMCS function was 3.26 in group I and 3.59 in group II, KSS pain was 2.09 in group I and 2.82 in group II, KSS function was 3.14 in group I and 4.23 in group II. Feller patellar score was 2.83 in group I and3.23 in group II. Water et al[17] found that the overall prevalence of anterior knee pain was 25.1% (fifty-eight of 231 knees) in the non-resurfacing group, compared with 5.3% (thirteen of 243 knees) in the resurfacing group. There was one case of component loosening. Ten of eleven patients who underwent secondary resurfacing had complete relief of anterior knee pain. The overall postoperative knee scores were lower in the non- resurfacing group, and the difference was significant among patients with osteoarthritis ($p < 0.01$). There was no significant difference between the resurfacing and non-resurfacing groups about the postoperative function score. Patients who had a bilateral knee replacement were more likely to prefer the resurfaced side.

Fu et al[18]found that the absolute risk of reoperation was reduced by 4% (1-7%) in the patellar resurfacing arm implying that one would have to resurface 25 patellae to prevent one reoperation. Only seven trials provided adequate data of anterior knee pain for a quantitative synthesis. Based on those seven trials, there was no difference between the two groups in terms of anterior knee pain. Anterior knee pain after total knee arthroplasty could have multiple etiologies such as surgical factors and non-resurfaced patella is not the sole cause of this problem.

The limitation of the study is the small sample size.

CONCLUSION

Authors found that both groups' clinical and radiological parameters were similar. Therefore, in patients undergoing bilateral total knee replacement, patellar resurfacing as well as non-resurfacing, can be done.

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