Two year follow up in 30 cases of total knee replacement

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ABSTRACT

Osteoarthritis is the most common form of arthritis that leads to pain, infirmity and deformity of the knee joint. This study was done with the aim to evaluate the efficacy of total knee replacement in relieving knee symptoms associated with osteoarthritis knee. This study was conducted on 30 patients suffering from osteoarthritis of knee, having pain (for some even at rest), contractures, varus deformity and decreased range of motion and had no relief with conservative modes of management. Patients were evaluated according to knee society score system after one month, three months, six months, one year and two years from the day of operation. In our study all were having poor grade preoperatively according to knee scoring system and postoperatively there were 22 excellent, 5 good and 3 fair results with no poor result in our study. It can thus be concluded from our study that total knee replacement provides an unparalleled improvement in the disease symptomatology, deformity correction and life style in patients suffering from osteoarthritis.

Keywords : osteoarthritis, total knee replacement (TKR), varus deformity

INTRODUCTION

Osteoarthritis is a leading cause of morbidity in the elderly. This renders them sedentary and dependent upon others. TKR has emerged as an effective treatment option in osteoarthritis and other deformities of knee, when all other measures have failed. TKR is one of the most successful procedures in orthopaedic surgery today. The indications of TKR are well defined and universally accepted; subsequently the results have been uniformly excellent. Once reserved for elderly patients, TKR surgery is becoming common in younger patients. Benefits of performing TKR in younger patients may outweigh the risks of surgery. The benefits are primarily quality of life, pain reduction and maintaining proper fitness. By accomplishing these goals, patients may also reduce the risk of developing other problems associated with poor fitness such as cardiovascular diseases.

MATERIAL AND METHODS

The study was conducted on 30 patients suffering from tricompartmental degeneration of knees, having severe pain (even at rest), contractures, varus deformity and decreased range of motion and had no relief with conservative modes of management.

The patients were evaluated pre-operatively and post-operatively according to Knee Society Scoring System. The standard operative technique for TKR was followed. On 2nd postoperative day resistive quadriceps exercises, ankle pump exercises and weight bearing as tolerated were started. Patients were discharged after removal of sutures at 14th day, with the advice of quadriceps exercises, range of motion exercises, weight bearing and walking with a walker and review after one month, three months, six months, one year and 2 years. The rating is divided into separate knee and patient function scores. Thus, increasing age or medical condition did not affect the full score.
RESULTS
In our study, there were 17 males and 13 females and out of which bilateral TKR was done in 2 cases but at different sittings. Maximum number of cases belonged to the age group of 60-69 Years with a mean age of 65.86 years and males turned up more for surgery in the ratio of 5:4. The average age of patient undergoing TKR with BMI <25 was 67 Years as compared to 63 Years in patients having BMI >25. Mean operating time was 1 hour 35 min (range 1 hr-10 min to 2 hrs). Average amount of blood in the drain postoperatively was 220 ml (range 150-280 ml) The majority of transfusions were administered in the first 72 hours postoperatively. There were no adverse reactions. Mean follow-up duration was 2 yrs 1 month (range 1 year 10 months- 2 years 4 months). Mean knee society score preoperatively was 51 (range 38-58) and postoperatively it was 84 (range 74-90). There were over 90% excellent results in patients with normal or weak quadriceps and in patients in whom wasting was present, there were 67% acceptable results. There was varus deformity in all the cases with an average angle of 20° (range 10°-30°), which was corrected and physiological valgus (2°-12°) was achieved in 90% of the cases with an average final angle of 6° in valgus (as shown in Fig. 1).

![Pre-Operative](image1) ![Post-Operative](image2)

ROM is considerably increased from a preoperative mean of 77° to a postoperative 105° at the end of two years.

Though diseases like DM, HTN, CAD do not affect the outcome of TKR directly, DM increases the chances of infection and there is delayed healing of the wound but no such complication occurred in our study. During the 2 years period of follow up there was no case of loosening of tibial or femoral component.

All cases were having poor grade preoperatively according to knee scoring system and postoperatively there were 22 excellent, 5 good and 3 fair results with no poor result in our study.

DISCUSSION
Osteoarthritis causes a lot of physical and mental trauma to the patient because of pain and deformity. TKR has emerged as a boon for patients suffering from osteoarthritis and other deformities of knee when all other measures have failed.

The success rate in our study was found to be 94% which is comparable to the study carried out by Vince et al. The mean age at which patients underwent TKR was 65.86 Years. The late acceptance for surgery can be attributed to poverty & illiteracy & taboo surrounding surgery. Females present in less numbers and follow more conservative approach, probably because of illiteracy and males being more outdoors and gender bias in our country.

Spicer & Pomeroy et al and Changulani et al found that the average age at which patients underwent TKR was much higher in patients with normal weight as compared to their obese counter-parts. The criteria they choose for obesity was BMI.

The findings of the present study also corroborate the above mentioned studies. Considering BMI < 25 as normal, the mean age at which these patients underwent TKR was 67 Years and in patients with BMI > 25, this age was 63 Years.

 Mizner, 2005 carried out a study in which he observed outcome after TKR surgery and preoperative quadriceps strength and he found these variables to be proportionate to each other i.e. better functional outcomes after TKR surgery and better quadriceps strength preoperatively.

In our study, 14 cases had normal quadriceps strength preoperatively, all of them except one had excellent results whereas when quadriceps was weak or wasted the results were not as good.

Hvid and Nielsen carried out a study, published in 1984 and observed that there were radioluencies in the knees of the patients in whom there was varus alignment of the knee. They observed inconsistent success in achieving the desired 2-12° of valgus.
In present study, out of the total 30 cases, we were able to achieve the physiological valgus of 2-12° in the 27 cases (as shown in fig 2). No cases were observed with tibial or femoral component loosening.

The original review in the first consecutive 220 arthroplasties was published by Insall et al in 1979 and they reported 137 (62%) excellent, 61 (287%) Good, 10 (4.5%) Fair and 12 (5.5%) poor results with a follow up of 3-5 Years in total Condylar prosthesis.

Aglietti reported 87.5% success rate. There were 2 loose tibial components with one had varus alignment.

In the present study the follow up was done at 1 month, 3 months, 6 months, 1 year and 2 years and the results were 73% excellent, 17% good, 10% fair and no poor results at the end of two years and these results are obtained not only due to surgical skills but also because of better antibiotics, proper sterilized environment, early ambulation and regular follow-up.

COMPLICATIONS
There were no major complications in our study.

Borden and Colleagues (1982) reported five patients (2.6%) with deep infection in a study of 192 knees in a follow up of 45-75 months.

Hvid and Sneppen in 1987 participated in a study that reviewed 95 knees and noticed 2 deep infections (2.5%) which were treated by debridement and arthrodesis.

In present study, there was no case of deep infection, presumably due to strict asepsis and good antibiotic coverage.

CONCLUSION
It can thus be concluded from the present study that TKR provides an unparalleled improvement in the disease symptomatology, deformity correction, stability and life style in the patients suffering from primary or secondary osteoarthritis.

REFERENCES
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