

Original Research Article

Long Term Results After Total Knee Arthroplasty With Oxford Knee Score

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ABSTRACT:

Background: Osteoarthritis of the knee is one of the most common causes of painful disability in elderly people. Surgical treatment has been and is still a major challenge for the knee surgeon. The results after surgical treatment, especially knee replacement are of great importance, not only for the individual person, but for the whole society as well. Total Knee Arthroplasty being gold standard treatment for knee Osteoarthritis. Total Knee Arthroplasty is one of the most common orthopaedic surgeries, with over 7000 procedures performed in 2014 in US and projected increase in coming decades (3). The use of Total Knee Arthroplasty implants and following check x-rays give a good assessment of reduction and ideal positioning of implant hence preventing the complications that could occur. This study puts in a sincere effort to study the long term results after Total Knee Arthroplasty.

Aims and Objectives: To study the long term results after Total Knee Arthroplasty with Oxford Knee Score.

Materials and Methods: Present study is a cross sectional and qualitative study conducted in the Department of Orthopaedics, Mar Sleevea Medicity Palai, Kerala, India. Study duration was of 1 year (Feb 2021 to Feb 2022). Patients who are diagnosed with OA knee (moderate to severe) were taken for this study after taking their consent. Patients, who are not diagnosed with OA knee, were taken out of this study. Sample Size has been found to be 100 patients with moderate to severe OA of the knee with the age of 38 years to 88 years.

Results and Observations: 100 cases were operated with moderate to severe OA of knee. Age of patient ranged from 38 years to 88 years. It was found in the study that mean duration of hospital stay was 12 days. It was found that 90% of patients had no pain at all with 10% of patients with moderate pain. In this study it was found that 85% of patients had no trouble to walk and 15% patients had pain after 16 to 30 minutes. It was found that 95% of patients had no pain at all and did not get up from sleep because of pain. Only 5% of patients had pain and got up from sleep. 100% of patients did not have complaint of sudden giving away of knee. In this study 92% of patients could walk down a flight of stairs easily and 8% of patients had moderate difficulty while walking

downstairs. In this study 92% of patients had score between 40 to 48 which indicate satisfactory joint function.

Conclusion: TKA is highly successful and cost effective definite treatment of moderate to severe OA, but it is not without preoperative mobility, complications and long term failures. Imaging is an important aspect of the identification and management of problems.

Keywords: Outcome measure, Osteoarthritis, Total Knee Arthroplasty, Oxford Knee Score, Complications, Surgical treatment, Hospital stay, preoperative mobility, postoperative mobility.

1. INTRODUCTION:

Osteoarthritis of the knee is one of the most common causes of painful disability in elderly people. Surgical treatment has been and is still a major challenge for the knee surgeon. The results after surgical treatment, especially knee replacement are of great importance, not only for the individual person, but for the whole society as well. One of the early problems was to study which materials were compatible with the human body. Dr Gluck in Vienna in 1880, more than 100 years ago, operated on three patients with knee replacement. He used hinges made of elephant bone. The short term results were promising with good pain relief, but six months later he had to warn for this procedure. All three patients became infected and one of them ended up with amputation of the femur. The Swedish orthopaedic surgeon Börjey Walldius was considered to be a pioneer when he in the 1950's developed a more sophisticated hinge prosthesis using intramedullary stems, both in the femur and the tibia. He claimed that the interface between the prosthesis and the bone was similar to the periodontium around the teeth. Later on, during the 1960's, Sir John Charnley introduced the two component bone cement for anchoring the prosthesis to the bone. This was a rigid fixation, which brought great success, but also left place for further development. The natural history of osteoarthritis (OA) is not fully known so far. The surgical treatment was from the beginning concentrated to whole joint arthroplasty, i.e. exchange of two or three components of the knee. However, in some patients observations showed that the joint disease was located to only one compartment of the knee. Accordingly, it was encouraging to design unicompartmental knee replacement. The first modern designs were the St Georg (1969) and the Marmor (1972) knee hemi prosthesis. Due to the configuration of the femoral condyles, the metal femoral component was made polycentric of, articulating on a flat polyethylene tibial component. Both components were then cemented to the bone. In the long term, component wear and risk of osteolysis combined with subsidence may be suspected. Migration and loosening are the common reasons for revision of the prosthesis. In 1974, the orthopaedic surgeon John Goodfellow and the engineer John O'Connor designed a new unicondylar prosthesis consisting of a spherical femoral component, a flat tibial component and a polyethylene mobile bearing, fully congruent was inserted between. This device allows a combination of flexion extension, translation and rotation, which may resemble the normal kinematics of the knee (1, 2). Total Knee Arthroplasty is considered constantly successful and cost effective surgeries in field of orthopaedics (4). Total Knee Arthroplasty provides reliable outcomes for patients suffering from end stage, tri compartmental, degenerative osteoarthritis. It improves patient outcome dramatically with respect to pain relief, functional restoration and improved quality of life with end stage arthritis (3). Knee is the largest synovial joint in humans; it is composed by osseous structures (distal femur, proximal tibia and patella), ligaments and a synovial membrane. The latter is in charge of the production of synovial fluid, which provides lubrication and nutrients

to the avascular cartilage (8). Unfortunately, given the high use and stress of this joint, it is a frequent site for painful conditions including OA (9). Knee is the most commonly affected joint which is hallmarked by a gradual degeneration and loss of articular cartilage. This degenerative and progressive joint disease affects around 250 million people worldwide (4) and more than 27 million people in the United States (5,6). Elderly (approximately 35% of patients over 65 years old) females, patients with obesity and African Americans are the population with the highest risk of developing OA (7,8).

OA is classified into two groups according to its etiology: primary (idiopathic or non-traumatic) and secondary (usually due to trauma or mechanical misalignment). The severity of the disease can also be graded according to the radiological findings by the Kellgren- Lawrence (KL) system described in 1957 (10). Previously it was believed that OA was exclusively disease of cartilage, however the present studies has proven that OA is a multifactorial entity, like trauma, mechanical forces, inflammation, biochemical reactions and metabolic derangements (11). The source of pain is mainly derived from changes to the non-cartilaginous components of the joint, like the joint capsule, synovium, subchondral bone, ligaments and peri-articular muscles (8,11). As the disease advances, these structures are affected and changes including bone remodeling, osteophyte formation, weakening of periarticular muscles, laxity of ligaments and synovial effusion can become evident (12). In OA, the synovial fluid contains many inflammatory mediators including plasma proteins, prostaglandins, growth factors, cytokines, nitric oxide and complement components (13,14). The most common clinical diagnosis associated with Total Knee Arthroplasty is primary OA, but other potential underlying diagnosis including inflammatory arthritis, fracture, dysplasia and malignancy. Orthopaedic thought leaders have called for improvements in satisfaction reporting as a way of demonstrating the value of orthopaedic procedures (15).

This study puts in a sincere effort to study long term results after TKA with Oxford Knee Score (16). The post operative patient after Total Knee Replacement were assessed with Oxford Knee Score (OKS). The French version of OKS has been described elsewhere (17). It has 12 items on daily activities, which the patient must answer without help from healthcare personnel. Each item is scored from 1 (normal function) to 5 (extreme difficulty). The global score is the sum of the 12 item scores; therefore, the best possible score is 12 and the worst possible score is 60. Clinicians found this confusing in practise and adaptations began to appear, so the original authors developed a new scoring system from 0-4 where 4 is the best outcome and total scores range from 0 (worst outcome) to 48 (best outcome) (18). The OKS has demonstrated strong test-retest reliability in its original testing (19). A 2016 systematic review of 23 studies found good evidence of its reproducibility (20).

Most patients were willing to follow and perform the post operative rehabilitation and hence good functional recovery.

2. AIMS AND OBJECTIVES:

To study the long-term results after Total Knee Arthroplasty with Oxford Knee Score.

3. MATERIALS AND METHODS:

Present study is a cross sectional and qualitative study conducted in the Department of Orthopaedics, Mar Sleeva Medicity Palai, Cherpunkal, Kozhuvanal PO, Kerala, India. Study duration was of 1 year (Feb 2021 to Feb 2022).

Inclusion criteria -Patients who are diagnosed with OA knee (moderate to severe) were taken for this study after taking their consent.

Exclusion criteria- Patients, who are not diagnosed with OA knee, were taken out of this study.

Sample Size has been found to be 100 patients with moderate to severe OA of the knee with the age of 38years to 88years.

4. RESULTS:

Table 1. Age distribution.

Age (in years)	Number Patients	Percentage
38-62	40	40%
63-88	60	60%
Total	100	100

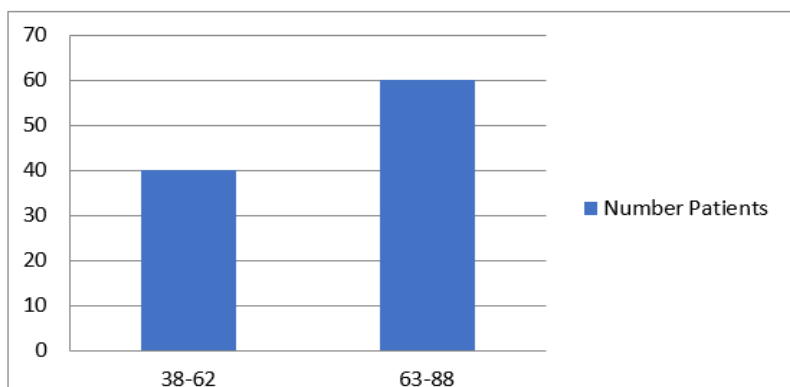


Figure 1. Age distribution

Table 2. Sex distribution.

Gender	Number Patients	Percentage
Male	34	34%
Female	66	66%
Total	100	100

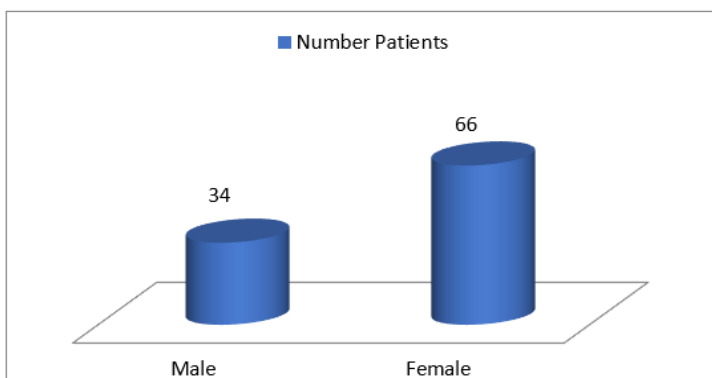


Figure 2. Sex distribution.

Table 3. Pain pattern of the patients during the hospital stay.

Pain	Age of patients (Years)	
	38-62	63-88
None	40	50
Very mild	-	-
Mild	-	-

Mild Moderate	-	10
Severe	-	-

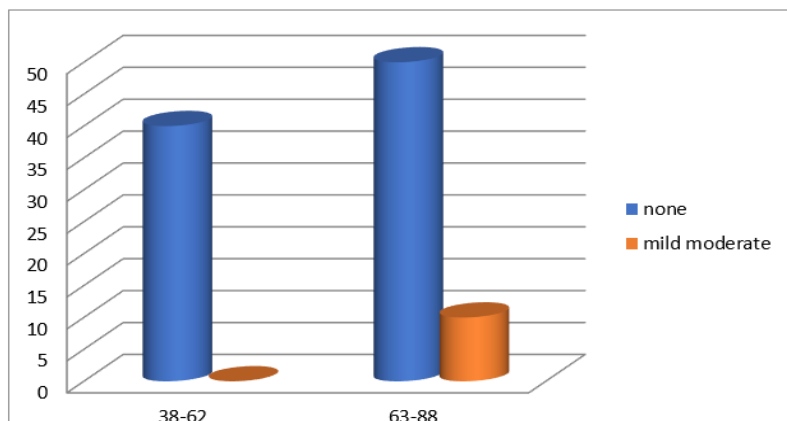


Figure 3. Pain pattern of the patients during the hospital stay

100 cases were operated with moderate to severe OA of knee. Age of patient ranged from 38 years to 88 years. As in Table 1 and Figure 1.

It was found in the study that means duration of hospital stay was 12 days.

It was found that 90% of patients had no pain at all with 10% of patients with moderate pain. As in Table 2, 3 and Figure 2, 3

In this study it was found that 85% of patients had no trouble to walk and 15% patients had pain after 16 to 30 minutes.

It was found that 95% of patients had no pain at all and did not get up from sleep because of pain. Only 5% of patients had pain and got up from sleep.

100% of patients did not have complaint of sudden giving away of knee.

In this study 92% of patients could walk down a flight of stairs easily and 8% of patients had moderate difficulty while walking downstairs. In this study 92% of patients had score between 40 to 48 which indicate satisfactory joint function. As in Figure 3,4, (1)(2)(3)(4).



Figure 4. (1) PRE-OPERATIVE X RAY –Knee AP.

(2) PRE-OPERATIVE X RAY –Lateral

(3) POST OPERATIVE X RAY –Knee AP

(4) POST OPERATIVE X RAY –Lateral

DISCUSSION:

This series comprises of 100 patients with moderate to severe OA. Few patients had HTN, DM, Bronchial Asthma etc. Patient on anti-platelets were asked to stop five days prior to surgery. We found that the main reason for most of the symptoms being irregular physiotherapy programme. Patients with OA are characterized by decreased knee extensor strength and this decrease in knee extensor strength is associated with limitation of activities of daily living, independent of knee pain (21,22). Though OA is now better understood and methods of treatments have improved. We have had one case of tibial component sinkage for a rheumatoid patient for which tibial component revision was done with long tibial stem (23).

Few other complications include aseptic loosening, instability, infection, polyethylene wear with or without particle disease and extensor mechanism failure (24). The most common causes of early failure are infection and instability (25,26). A 2010 meta-analysis showed that IL-6 measurement has high sensitivity for periprosthetic joint infections, but this test may not be in common use (27, 28,29).

CONCLUSION:

TKA is highly successful and cost-effective definite treatment of moderate to severe OA, but it is not without preoperative mobility, complications and long-term failures. Imaging is an important aspect of the identification and management of problems.

Conflict of interest-None

Source of funding –None

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