Journal of Advanced Medical and Dental Sciences Research
@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr ICV 2018= 82.06

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Evaluation of cases of total knee arthroplasty and their outcome- A clinical study

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***ABSTRACT*:**
Background: Total knee arthroplasty (TKA) is one of the most common major surgical procedures. The present study was conducted to determine total knee replacement patients and their outcome. **Materials & Methods:** The present retrospective study was conducted on 146 patients of both genders in which TKA was performed in last 5 years. In all patients, type of failure, and need for revision total knee arthroplasty was recorded. **Results:** Out of 146 patients, males were 86 and females were 60. Causes of revision TKA was infection seen in 90, aseptic loosening in 10, instability in 9, stiff knee in 15, peri-prosthetic fracture in 12, patellar clunk in 3, quadriceps disruption in 4, failed unicondylar knee in 2 and metallosis in 1. The difference was significant ($P< 0.05$). The most common early failure was infection seen in 40 and peri-prosthetic fracture seen in 5 patients. Most common delayed failure was stiff knee seen in 7 and instability in 6 patients. Late failure was seen in stiff knee in 5 cases. **Conclusion:** The most common reason for revision total knee arthroplasty was infection followed by Peri-prosthetic fracture and stiff knee.
Key words: Peri-prosthetic fracture, Metallosis, Total knee arthroplasty.

Received: 15 February, 2019 Revised: 16 March 2019 Accepted: 18 March 2019

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This article may be cited as: Kumar V. Evaluation of cases of total knee arthroplasty and their outcome- A clinical study. J Adv Med Dent Scie Res 2019;7(4): 141-144.

INTRODUCTION

Total knee arthroplasty (TKA) is one of the most common major surgical procedures being performed. Socioeconomic growth in developing countries has made the TKA accessible to a very large population of patients with arthritis.[1] The replacement prosthesis of choice varies depending on the underlying disease, the severity of knee joint damage, and the age of the patient. Total knee arthroplasty is usually performed in patients aged 60 years or older when the bone and articular cartilage are so severely damaged that there is no other effective therapy.[2] The common diseases causing knee damage treated by arthroplasty are osteoarthritis, chronic rheumatoid arthritis, and osteonecrosis, while contraindications for knee arthroplasty include purulent arthritis and tuberculosis.[3]

Compared to primary TKA procedures, revision TKA (RTKA) surgery is skill, infrastructure, and cost intensive. Management of septic revisions costs considerably more than that of aseptic revisions. Prevalence of severe deformities, poor bone stock, and rheumatoid disease increases surgical difficulties and impairs the success and longevity of the primary TKA procedures. Concurrently, use of modern implants with wear-resistant bearing surfaces in patients with limited activity levels may have a positive impact on the longevity of arthroplasties in developing countries.[4] The present study was conducted to determine total knee replacement patients and their outcome.

MATERIALS & METHODS

The present retrospective study was conducted in the department of Orthopaedics. It comprised of 146 patients of both genders in which TKA was performed in last 5 years. All were informed regarding the study. Ethical approval was obtained from institute prior to the study.

General information such as name, age, gender etc. was recorded. In all patients, type of failure, and need for revision total knee arthroplasty was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Gender	Males	Females
Number	86	60

Table I shows that out of 146 patients, males were 86 and females were 60.

Table II Causes of revision TKA

Causes	Number	P value
Infection	90	0.01
Aseptic loosening	10	
Instability	9	
Stiff knee	15	
Peri-prosthetic fracture	12	
Patellar clunk	3	
Quadriceps disruption	4	
Failed unicondylar knee	2	
Metallosis	1	

Table II, graph I shows that causes of revision TKA was infection seen in 90, aseptic loosening in 10, instability in 9, stiff knee in 15, peri-prosthetic fracture in 12, patellar clunk in 3, quadriceps disruption in 4, failed unicondylar knee in 2 and matallosis in 1. The difference was significant (P< 0.05).

Graph I

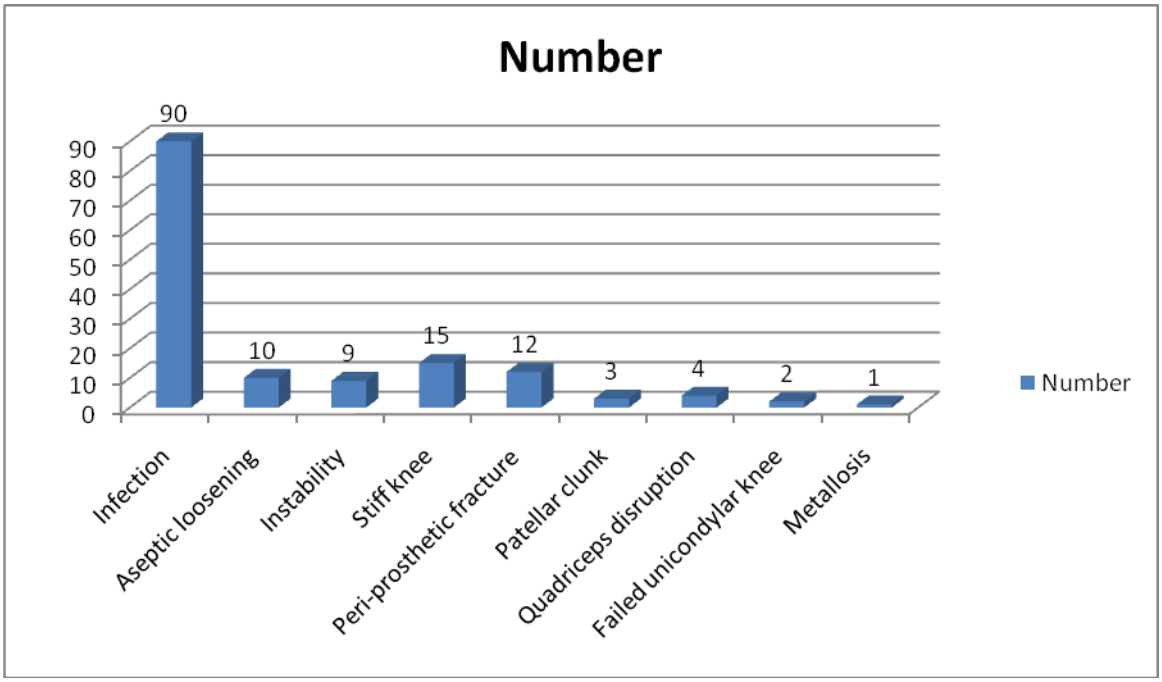

Table III Type of failure

Causes	Early	Delayed	Late
Infection (90)	40	30	20
Aseptic loosening (10)	2	5	3
Instability (9)	1	6	2
Stiff knee (15)	3	7	5
Peri-prosthetic fracture (12)	5	3	4
Patellar clunk (3)	1	1	1
Quadriceps disruption (4)	1	2	1
Failed unicondylar knee (2)	1	0	2
Metallosis (1)	0	0	1

Table III shows that most common early failure was infection seen in 40 and peri-prosthetic fracture seen in 5 patients. Most common delayed failure was stiff knee seen in 7 and instability in 6 patients. Late failure was seen in stiff knee in 5 cases.

DISCUSSION

A total knee arthroplasty is the surgical removal of the diseased joint and replacement with a metal hinge joint (prosthesis) that is attached to the thighbone (femur) and the shinbone (tibia).[5] In most cases, bone cement is used to fix the prosthesis to the thigh and shin bone. Total knee arthroplasty (TKA) is a cost effective and successful operation for patients with end-stage arthritis of the knee. In the United States, the demand for TKA is projected to rise by 673% to 3.48 million procedures by 2030, and revision TKA by 601%. Furthermore, the demand for TKA among patients aged < 65 years is predicted to be > 50% of the TKAs which are performed by 2016.[6]

Risk such as infection can occur, requiring antibiotics and further treatment. Bleeding could occur and may require a return to the operating room. Bleeding is more common if you have been taking blood thinning drugs such as Warfarin, Asprin, Clopidogrel (Plavix or Iscover) or Dipyridamole (Persantin or Asasantin). Small areas of the lung can collapse, increasing the risk of chest infection. This may need antibiotics and physiotherapy. Increased risk in obese people of wound infection, chest infection, heart and lung complications, and thrombosis.[7] The present study was conducted to determine total knee replacement patients and their outcome.

In this study, out of 146 patients, males were 86 and females were 60. Causes of revision TKA was infection seen in 90, aseptic loosening in 10, instability in 9, stiff knee in 15, peri-prosthetic fracture in 12, patellar clunk in 3, quadriceps disruption in 4, failed unicondylar knee in 2 and matallosis in 1.

Calliess et al[8] found that of the 5068 TKA procedures performed, 201 (4%) were first-time revisions. The predominant cause of revisions was prosthetic infection (61%) followed by aseptic loosening (18%) and instability (7%). In the early, mid- term, and late-failure groups, prosthetic infection remained the main cause of failure. In 47% of the septic revisions, the offending organisms could be identified and of those identified most (67%) were Gram-negative.

We found that most common early failure was infection seen in 40 and peri-prosthetic fracture seen in 5 patients. Most common delayed failure was stiff knee seen in 7 and instability in 6 patients. Late failure was seen in stiff knee in 5 cases. Oduwole et al[9] stated that total knee arthroplasty (TKA) is a cost effective and extremely successful operation. As longevity increases, the demand for primary TKA will continue to rise. The success and survivorship of TKAs are dependent on the demographics of the patient, surgical technique and implant-related factors. Currently the risk of failure of a TKA requiring revision surgery ten years post-operatively is 5%. The most common indications for revision include aseptic loosening (29.8%), infection (14.8%), and pain (9.5%). Revision surgery poses considerable clinical burdens on patients and financial burdens on healthcare systems.

CONCLUSION

The most common reason for revision total knee arthroplasty was infection followed by Peri-prosthetic fracture and stiff knee.

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