



## Al-Jala Hospital Experience on Total Knee Arthroplasty

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**Abstract:** The aim of this Prospective study was to analyze the results and our experience in the knee Arthroplasty for the management of primary osteoarthritis at aljala teaching hospital in Benghazi. From January 2007 to December 2008, our orthopedic department; male orthopedic A (MOA ) and female orthopedic word ( FOW ) operated 60 knees of 55 patients. 43 of them were females (78%) and 12(22%) were males, and the mean age was 56 years. We recorded patient's details; age, sex, Right or Left knee days of staying in hospitalization, Classification of OA [primary or secondary], time of operation, and associated diseases [hypertension, Diabetes mellitus, Ischemic heart disease]. A physical examination to assess knee motion, stability, strength, and overall leg alignment and X-rays (radiographs) to determine the extent of damage and deformity of the knee. Post-operative complications and Revision. At final evaluation after a minimum period of 3 years; 5(9%) patients had bilateral total knee replacement, 32 right knee patients (58%), and 23left knee patients (42%). Loosening tibial component was found in two patients (3.6%), and one patient (1.8%) was complicated by postoperative infection. Patients with rheumatoid arthritis showed more improvement than those with osteoarthritis. The conclusions with regards to the differential treatment of women are almost two-thirds as likely to undergo a TKA as men. Elective TKA is an effective treatment option for end-stage osteoarthritis of the knee.

**Keywords:** Arthroplasty, Osteoarthritis, Total knee arthroplasty.

### INTRODUCTION

Total knee replacement (TKR), also referred to as total knee arthroplasty (TKA), is a surgical procedure where worn, diseased, or damaged surfaces of a knee joint are removed and replaced with artificial surfaces. Materials used for resurfacing of the joint are not only strong and durable but also optimal for joint function as they produce as little friction as possible. The "artificial joint or prosthesis" generally has two components, one made of metal which is usually cobalt-chrome or titanium. The other component is a

plastic material called polyethylene [ figure 1]. Modern knee arthroplasty began in the early 1970s with the development of the total condylar knee prosthesis. Survivorship studies with this prosthesis are the standard with which modern knee replacement is compared. Long-term series by Ranawat *et al.* Font-Rodriguez *et al.* and Pavone *et al.* have documented the longevity of the original total condylar prosthesis to be 95% at 15 years and 91% at 21 and 23 years(Font-Rodriguez *et al.*, 1997; Ranawat, 1986)

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**Figure (1).** Components of knee arthroplasty

Cementless fixation has had mixed results with respect to prosthesis survivorship. Some designs have equaled the success of cemented designs whereas others have had higher rates of failure because of tibial loosening, polyethylene wear, and osteolysis (Murray et al., 1994; Whaley et al., 2003). The general goal of total knee replacement is to provide painless and unlimited standing, sitting, walking, and other normal activities of daily living, but it is not designed for sports like tennis.

## MATERIALS AND METHODS

Data were collected for all attendances over the years (2007-2008) in which the cases with primary osteoarthritis treated by TKR at Al-jalla teaching hospital (Orthopedic Department –Benghazi) main regional trauma centre. We recorded patient's details: Age, sex, side, days of staying in hospitalization, classification of O.A [primary or secondary], time of operation, associated diseases [Ahypertension–Diabetes mellitus– Ischemic heart disease], a physical examination to assess knee motion, stability, strength, and overall leg alignment and X-rays (radiographs) to determine the extent of damage and deformity of the knee, post operative complications, revision done or not.

Our treatment protocol included the routine investigation of hemoglobin levels, blood

sugar, blood group, renal function, urine examination, electrocardiograph and chest radiography, and any medical problems were treated with the help of physician and anesthetist so the surgery could be carried out as soon as possible. We used the cementing techniques in all surgical procedures, and the healing process was determined both clinically and radio graphically [figure 2].



**Figure (2).** X-Ray of TKR

**Statistics:** From January 2007 to December 2008, our unit operated (60) knees of (55) patients with primary osteoarthritis admitted from the total number of admission (3509) to MOA-FOW. In 2007 (688) patients admitted to F.O.W and (1021) patients admitted to M.O.W. In 2008 (809) patients admitted to F.O.W and (991) patients admitted to M.O.W

**Post-operative policy:** Sciatic nerve block may provide earlier anesthesia effects than Local infiltration anesthesia when combined femoral nerve block. However, there were no differences in morphine use, active knee flexion, postoperative nausea, and vomiting between the groups. The Local infiltration anesthesia group spent less time under anesthesia, suggesting that Local infiltration anesthesia may offer a practical and potentially safer alternative to Sciatic nerve block (Li *et al.*, 2016 ). We started the isokinetic physiotherapy in the second week in the non-complicated cases by using the continuous passive motion machine (McInnes et al., 1992) and were discharge after two

weeks from the admission except for one patient who stayed for 6 weeks to control post operative infection (Schoifet & Morrey, 1990).

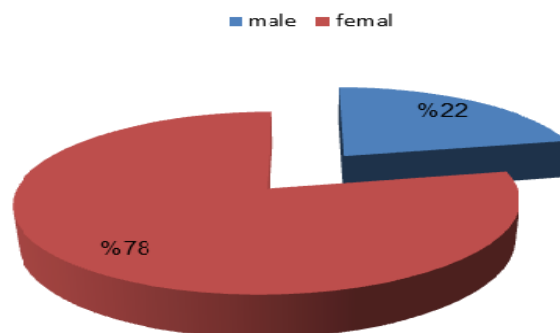
**Follow-up:** patients were normally reviewed in the first week, third week, and every month until healing occurred. The patients have a follow up protocol reaching up to 3 years (36 month). Compared to 45 months for WOMAC ( Western Ontario and McMaster Universities). However, weighting for baseline knees and Knee Society score (KS) had a mean follow up of 90 months and 68 months for WOMAC, but Hospital for Special Surgery scale (HSS) was only 61 months. The longest mean follow up time was 90 months (KS scores weighted for baseline knees), way less than the 10 years that has been suggested in order to evaluate long term functional results (Crowder et al., 2005; Insall et al., 1989)

### RESULTS

In average, the patients were approximately 56 years of age and very few of them were over the age of 75 [tab.1]. nearly all of the patients had primary osteoarthritis, and about 78% were females and 22% were males (figure 3).

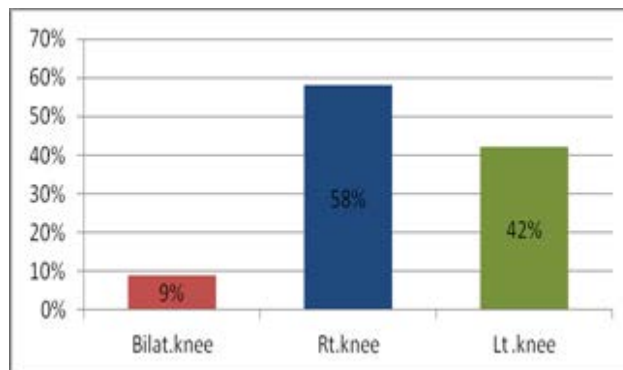
**Table (1).** Characteristic of the 55 patients.

Male to female ratio	12 male -43 female
Age of the patient (Average)	56 years
Body weight (Average)	80 kg
Bilateral TKR	5 patients
Right knee Replacement	32 patients
Left knee Replacement	23 patients
Patients with rheumatoid arthritis	3 patients
Range of motion post O.T	90°
Loosening tibial component	2 patients
Infection Post Operative	One patient



**Figure (3).** male and female ratio

Four patients presented with HTN and D.M, three patients with IHD, renal stone one patient, and 3 patients with kwon case of rheumatoid arthritis and one of them was 52 years female also presented with HTN and D.M operated and followed up during the period of study with no complication. The average time to healing of the 60 total knee replacement was 4 months (minimum 3 months, maximum 7 months). The overall knee range of motion averaged 90°. Body weight average 80 kg, Bilateral total knee replacement was applied for 5 patients (9%), right knee 32 (58 %), and left knee 23patients ( 42 %) (figure 4).



**Figure (4).** patients knee ratio for arthroplasty

Loosening tibial component was found in two patients, one female was 58 years (D.M and HTN) and the other female was 60 years ( HTN and IHD). One female patient complicated by post operative infection was 65 years ( CRP was 311 .. 78 ) and was planning for revision.

## DISCUSSION

Patients with rheumatoid arthritis showed more improvement than those with osteoarthritis, but this may be related to their poorer functional scores at the time of treatment and hence the potential for more improvement. Elective total knee Arthroplasty is an effective treatment option for end-stage osteoarthritis of the knee. The strongest evidence exists over a follow up period of up to two years, but the studies that extend to 5 and even 10 years of follow up show positive results as well (Crowder et al., 2005).

The revision rate through two or more years is 1.8 percent of knees and 1.6 percent of patients. Postoperative complications occurred in 1.8 percent of patients and 1.6 percent of knees. There were only 11 patients with cardiovascular or renal complications . The conclusions with regard to the differential treatment of women are almost two-thirds as likely to undergo a TKA as men. These conclusions are tempered by the limitations of the designs of many studies included in the analysis. Although osteoarthritis does not seem to be a predictor of outcomes, the results seem to be somewhat better for rheumatoid arthritis(Alicea, 2001; Bellamy et al., 1988).

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## خبرة مستشفى الجلاء في المفصل الصناعي للركبة

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**المستخلص:** المفصل الصناعي للركبة عبارة عن عملية جراحية يتم فيها استبدال الركبة التالفة أو المصابة بمرض جفاف المفاصل (الفصال العظمي) بمفصل صناعي لا يتميز بالصلابة والثبات وحسب بل يؤدي وظيفة الركبة الطبيعية. والهدف من البحث دراسة تحليلية لعدد من المرضى المصابين بمرض الفصال العظمي للركبة خلال الفترة الممتدة من شهر يناير 2007 م إلى نهاية شهر ديسمبر 2008 م، حيث قمنا بدراسة تحليلية للركب المستبدلة للحالات المرضية التي دخلت مستشفى الجلاء للحوادث بنغازي خلال تلك الفترة. الدراسة شملت عدد 55 مصاباً متوسط أعمارهم 56 سنة وبعض الحالات كانت مصابة بأمراض مزمنة مثل مرض السكري والضغط وكذلك بعض الحالات كانت مصابة بمرض التهاب المفاصل الروماتويدي، وبعد إجراء التحاليل والأشعة اللازمة تم استبدال 60 مفصلاً صناعياً لعدد 55 مريضاً، من الرجال 12 مريضاً والنساء 43 مريضة ومن بين هذه الحالات 5 مرضى قمنا باستبدال الركبتين على مرحلتين، وخلال فترة المتابعة ولمدة ثلاث سنوات كانت النتائج النهائية للدراسة حدوث التهاب المفصل الصناعي لمريض واحد فقط، أما ارتخاء أو تفكك المفصل الصناعي فكان لمريضين. وكانت النتائج مرضية لمرضى الروماتويد وللنساء أكثر من الرجال، المفصل الصناعي للركب يعتبر من العلاجات الناجحة للمرضى المصابين بمرض الفصال الركبي.

**الكلمات المفتاحية:** المفصل الصناعي للركبة - الفصال الركبي - المفصل الصناعي.