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A STUDY OF OUTCOME OF MINIMUM 1 YEAR FOLLOW UP OF JOINT REPLACEMENT IN VARIOUS GOVERNMENT SCHEME (A STUDY OF 35 CASES)

Orthopaedics

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ABSTRACT

The hip joint is the most important joint of the body as it enables a person to assume various postures. Diseases of this joint are always alarming because if untreated, produces serious disability, for this reason various methods of management of hip diseases have been devised, but failure of conventional management in advanced stages of hip diseases like AVN, osteoarthritis, rheumatoid arthritis, congenital subluxation or dislocation, bone tumor etc. have brought a new surgical era of Total Hip Replacement (THR).

The knee joint is the largest articulation in the body. Also this is a main weight bearing joint of the body. The usual degenerative changes due to advancing age most commonly affect this joint. Diseases of this joint are alarming because if untreated it produces more and more pain and disability, for this reason various methods of management of knee joint ailments have been devised, but failure of conventional management in the advanced stage of knee arthritis have brought a new surgical era of total knee replacement.

Arthroplasty is an operation to restore pain free motion to a joint and function to the muscles, ligaments and other soft tissue structures that control the joint. There has been an explosion in this field of knowledge in recent years.

Objectives: The aim of this work is to study outcomes of 1 year follow-up of joint replacement (THR+TKR) under government scheme and to study in terms of Pain relief,Range of motion, Functional improvements- To measure the functional outcomes, Complications - To evaluate short term as well as long term complication rate.

Materials and Methods: This is the retrospective study operated with total hip arthroplasty and total knee arthroplasty with atleast 1 year follow up of cases belonging to various age groups and having various pathologies of hip joint and knee joint and treated with uncemented THR and cemented TKR were assessed in respect to midterm follow up. Cases were assessed in respect to postoperative results of short and long term follow up with proforma and post operative radiographs at department of Orthopaedics, Guru Gobind Singh Govt. Hospital, Jamnagar

Results: TKR- Average functional score is 91.15 with 12 patients having score >90. Maximum score is 100 and minimum score is 5. Average knee score is 93.5 with maximum score 99 and minimum score 88.

THR- Almost all patients were walking with normal gait. Almost All (100%) patients were pursing their daily activities either normally or with minor modification in life style.82% had excellent Harris hip score.

KEYWORDS

Total knee replacement, total hip replacement, modifies harris hip score, knee score and functional score.

INTRODUCTION:

The hip joint is the most important joint of the body as it enables a person to assume various postures. Diseases of this joint are always alarming because if untreated, produces serious disability, for this reason various methods of management of hip diseases have been devised, but failure of conventional management in advanced stages of hip diseases like AVN, osteoarthritis, rheumatoid arthritis, congenital subluxation or dislocation, bone tumor etc. have brought a new surgical era of Total Hip Replacement (THR).Special recognition must be given to the late Sir John Charnley for his pioneer work in all aspects of total hip arthroplasty, including the concept of low frictional torque arthroplasty, surgical alteration of hip biomechanics, lubrication, materials, design, and operating room environment. A major advancement was his use of cold curring acrylic cement (polymethyl methacrylate) for fixation of the components. His periodic reviews, as well as those of other investigators, of the results in significant numbers of patients have been invaluable, especially concerning wear, infection, loosening, and stem failure.The success of total hip arthroplasty is based essentially on the creation of stable, artificial weight bearing surfaces with low friction between components that are fixed securely in bone, careful selection and evaluation of patients, as well as on meticulous attention to operative technique and asepsis. The hip replacement has been described as one of the most successful operation of the 20th century, since recent developments have led to increasing success rate, which now reaches 97%.

The knee joint is the largest articulation in the body. Also this is a main weight bearing joint of the body. The usual degenerative changes due to advancing age most commonly affect this joint. Diseases of this joint are alarming because if untreated it produces more and more pain and disability, for this reason various methods of management of knee joint ailments have been devised, but failure of conventional management in the advanced stage of knee arthritis have brought a new surgical era of total knee replacement.Arthroplasty is an operation to restore pain free motion to a joint and function to the muscles, ligaments and other soft tissue structures that control the joint. There has been an explosion in this field of knowledge in recent years.

OBJECTIVES:

The aim of this work is to study outcomes of 1 year follow-up of joint replacement (THR+TKR) done under government scheme. Study follow up results of uncemented total hip replacement and cemented knee replacement at 1 year of time in respect to early, late complication and combined Harris hip score taken under consideration.

To study in terms of--Pain relief, Range of motion, Functional improvements- To measure the functional outcomes. Complications - To evaluate short term as well as long term complication rate and Patient satisfaction.

MATERIAL AND METHODS:

Type of Study: Retrospective study

Duration Of study- January 2019 to December 2019

INCLUSION CRITERIA

- Age between 18 - 90 years.
- Patient operated with uncemented THR.
- Men and women both included in study.
- Patient undergoing Primary or Index surgery.
- All patient who had significant disabling hip pain and moderate to severe functional limitation of activities of daily living due to various hip pathology with any of the etiology.
- All patient who is having unilateral or bilateral hip involvement.
- Implants (all the varieties that were available for follow up)
- Patients with rheumatoid arthritis included
- Patients on conservative treatment before
- Patients with bilateral involvement and underwent bilateral TKA
- Patients with pre-existing fracture around the knee
- Patients with post traumatic osteoarthritis
- Patients operated under MAA or PMJAY scheme

EXCLUSION CRITERIA

- Age < 18 years and > 90 year.
- Old non-unions and mal-unions.
- All those patients who lost follow
- p during prospective study.
- Patient with severe systemic disease like renal and liver disease contraindicated surgical procedure
- Patient having cemented total hip replacement

- Patients who are reactive to HIV, HbsAg
- Patients with revision TKA
- Patients with post infective arthritis
- No MAA PMJAY card

Data was collected from the record section of the hospital's orthopaedics department.

Patients were called and examined to record outcomes at least after 1 year Indoor and outdoor case records, preoperative x rays and postoperative x rays and clinical assessment data are assessed.

Immediate postoperative x rays are assessed for adequacy of alignment.

Immediate complications were recorded from case records.

On final follow up examination, at least after 1 year of alignment and implant status are assessed using x rays, and functional outcome assessed using modified harris hip score and knee score and functional score and complications noted.

RESULTS:

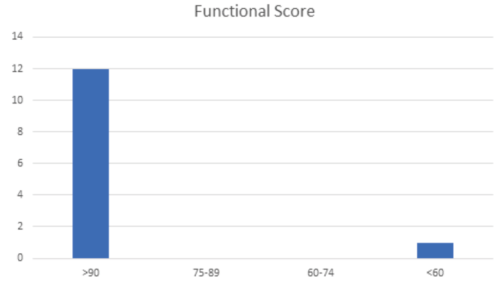
in our study of 35 patients 13 were of TKR and 22 were of THR.

TKR

- Weight bearing is started on average 3rd day. Maximum day of starting it is 15th day and minimum is 3rd day. Because of the pain during the initial days the patients are not advised weight bearing in immediate post operative period.
- First patients are sufficiently comfortable, then only walking is allowed. Till then, patients are given slab immobilization.
- 84 % patients have normal gait after TKA.
- 16 % have abnormal gait. The most common type of abnormal gait is antalgic gait.
- Average flexion achieved is 99.20°.
- Maximum flexion achieved is 120°.
- Minimum flexion achieved is 90°.
- Average extension achieved is 0°.
- FFD is not found in any patient.
- Maximum functional score is 100 which are present in 12 patients.
- Average functional score is 91.15.
- Maximum knee score is 99 seen in 2 patients.
- All patients have score >=85.
- Average knee score is 93.5

Results According To Functional Scoring System

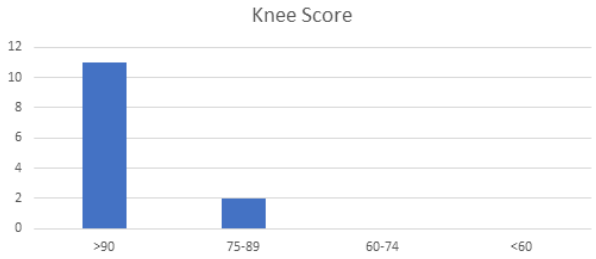
Functional Score	*No.*	*%*
>90	12	92.3%
75-89	0	0%
60-74	0	0%
<60	1	7.7%
Total	13	100%



- Maximum functional score is 100 which are present in 12 patients.
- Average functional score is 91.15.
- Minimum score is 5 which are seen in the patient with primary OA knee.

RESULTS ACCORDING TO KNEE SCORING SYSTEM

Knee Score	*No.*	*%*
>90	11	84.61%
75-89	02	15.38%
60-74	0	0%
<60	0	0%
Total	13	100%

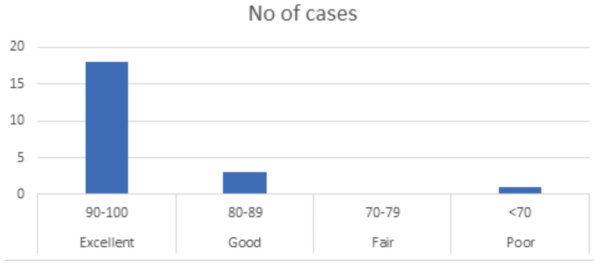


THR

- Out of 22 patients, no patient had any intra op complications.
- In my study 1 patient developed nerve palsy which was common peroneal and which was completely recovered in within 12 months of post operative period.
- In my study,1 patient developed anterior thigh pain.
- In my study 18 (81 %) patients are having no limping at follow up, 3 (14%) patients are having slight limping,1 (5 %) patient is having moderate limping.
- In my study, total 15 hips are having good range of motion according to modified Harris hip score and only one hip is having average range of motion.
- Out of 22 patients 32% had range of motion of 161-210 degrees and 68% patients had 211-300 degrees of range of motion.
- In my study 21 hip have no need of support while walking and only one hip having need of a cane for walking.
- 5% patients used cane for walking as patient had pathology in the opposite non-operated limb.
- In my study,19 patients can walk upto unlimited distance without any difficulty and only 3 patients can walk two to three block after that pain is developed and patient need rest after that.
- Among 22 patients in our study 18 patients(82%) had excellent Harris hip score, 3 patients(14%) had good and 1 patient (4%) had poor Harris hip score .The mean modified Harris hip score is 91.3 in our study.

MODIFIED HARRIS HIP SCORE

Harris hip score	Score	No of cases	Percent
Excellent	90-100	18	81.81%
Good	80-89	3	13.63%
Fair	70-79	0	0%
Poor	<70	1	4.54%
Total		22	100%



DISCUSSION:

TKR-

- In our study all the patients are operated by medial para-patellar approach.
- In our study all the patients are operated by cruciate substituting prosthesis

All the patients are operated by cemented TKA only

Average hospital stay is 6.7 days in our study which is comparable to Mollon 1B et al (2017) series that has average stay of 4.6 days. In our study average duration of stay is more because we included preop duration of stay in hospital too.

16% (2 out of 13) patients have antalgic gait at 2yr follow up after TKA which is comparable to Denon lee et al. Series which has 15% patients with antalgic gait following TKA

Average flexion achieved in our study is 99.20 degrees, FFD is not found in any patient all patients have flexion from 90-120 Degree.

Results comparable to :

SERIES	AVERAGE FLEXION
Man sookim et al	126.7 degree

Kantilal .H sancheti et al	128.17 degree
Present study	99.2 degree

Results according to knee society score and knee functional score:
In our study average functional score is 91.15 and 92.33% patients have functional score > 90 which is comparable to Rahul V kadam et al. Series in which 92.5% patients have functional score >90.

In our study average knee score is 93.5 and all patients have score > 85 which is comparable to :

SERIES	AVERAGE KNEE SCORE
Man sookim et al.	90.3
Rahul V kadam et al.	92.5
Present study	93.5

Even though some patients have less ROM or less knee score, they are satisfied with the surgery and good functional score because of old age they put the joint in less demanding positions.

THR-

- All patients in our study were operated by modified Gibson approach because it has good surgical exposure, as anterior capsule is left intact dislocation rate is reduced and abductor mechanism not disturbed and less chance of abductor lurch which eases post operative rehabilitation only disadvantage to this approach is bleeding and sciatic nerve damage.

- **Early Complications**

	None	Early infection	Dislocation	Nerve Palsy
Present	95%	0	0	5%
MOCZYNSKI	77%	9.7%	12%	1%

Among 22 patients no patients had any intra-op complications and 1 (5%) patient had common peroneal nerve palsy, which is comparable to MOCZYNSKI early infection is 9.7%, 12% had dislocation and in 1 patient suffered from sciatic nerve palsy which is 1%.

1 patient who had CPN palsy postop was managed by oral neurotropic drugs and physiotherapy by active and passive mobilization and the recovery was monitored by EMG and NCV tests and Tinel's sign and at final follow up after 12 months patients had completely recovered.

- **Late Complications**

	Anterior thigh pain	Loosening
Present	5%	0%
JY KIM	11.7%	8%

The incidence of late complication in patients operated for uncemented THR anterior thigh pain 5% which is less than JY KIM, Korea which is 11.7% which could be due to anterior impingement of stem in femur or loosening, 8 % patient had loosening due aseptic osteolysis in JY KIM study.

1 patient in my study who had anterior thigh pain also had been operated previously for subcapital neck femur fracture in the opposite limb which had a large sized acetabular cup and caused referred pain to the replaced hip joint.

- **Functional outcome :**

Limp

	None	Slight	Moderate	Severe
Present	81%	14%	5%	0%
S.Mungangaiah	41%	34%	19%	6%

Out of 22 patients 81% had no limp, 14% had slight and 5 % had moderate limp, moderate limp was seen in 1 patient who had history of HRA done in the opposite limb.

3 patients who had slight limp was due to AVN of femoral head of opposite non-operated limb.

5% patient used cane for walking and 95% used no support.

1 patient who used cane for support also had moderate limp and anterior thigh pain a probably due to referred pain from the opposite limb.

32% had range of motion of 161-210 degrees and 68% patients had 211-300 degrees of range of motion.

	Mean Score
Present	91.3
JY KIM	90
S.Munigangaiah	93.8

Among 22 patients in our study 82% had excellent Harris hip score, 14% had good, 4% had poor Harris hip score. The mean modified Harris hip score is 91.3 in our study as compared to JY KIM 90% and S. MUNIGANGAIAH 93.8% which is also similar which signifies over all out come total hip replacement is good in all patients treated for the same.

CONCLUSION:

TKR

- Average age is 61.70 years with most common group undergone TKA is 7th decade.
- Females are operated more than males with M: F ratio 1: 3.34.
- Medial parapatellar approach only is used at our institute.
- All TKA done are Cruciate substituting TKA only.
- All TKA done are cemented only.
- Average hospital stay is 6.7 days.
- Weight bearing is started on average 3rd day.
- 85 % patients have normal gait after TKA and only 15 % have antalgic gait.
- 1 patient needs support for walking only and not for standing because the patient had pathology in the opposite limb.
- Average flexion achieved is 99.2^{o} with maximum 120^{o} and minimum 90^{o}.
- No patients have Extension lag.
- No patients have FFD.
- No patient has infection, DVT, patellofemoral complications, dislocation or other complications.
- Average functional score is 91.15 with 12 patients having score >90. Maximum score is 100 and minimum score is 5.
- Average knee score is 93.5 with maximum score 99 and minimum score 88.
- THR
- All patients in my study are operated with modified Gibson's postero-lateral approach
- 5% patients were having post-surgical complication.
- Almost all patients were walking with normal gait.
- Almost All (100%) patients were pursing their daily activities either normally or with minor modification in life style.
- 5% patients have limb length shortening which is less than 1 cm and clinically insignificant.
- 13% patients have limb length lengthening, which is less than 1 cm and clinically insignificant.
- Both the types of patients required no additional management for limb length discrepancy as it was well tolerated by these patients.
- All the patients in my studies were having good to excellent range of motion scale according to modified Harris hip score.
- Only 1 patient developed anterior thigh pain which may be due to referred pain from opposite hip as the patient had been operated previously by hemi-replacement arthroplasty for neck femur fracture and patient may have pain there due to tight acetabular cup.
- In my study, incidence of complication like dislocation, infection, loosening are less than the comparison study so it indicates that chances of these complication are less with uncemented THR.
- I have done only 2 years follow up of uncemented THR and some late complication like loosening, osteolysis are much more common in long term follow up.
- In our study comparing the following parameters of-- functional limp, range of motion, daily activity affection and Harris hip score doesn't show any significant difference among our reference study and functional results of the patients are good suggesting that Uncemented total hip replacement prosthesis is good modality to treat the patients with advanced hip arthritis especially young patients.

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