



FUNCTIONAL OUTCOME OF TOTAL HIP REPLACEMENT IN FRACTURE NECK OF FEMUR

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ABSTRACT**Aim:** The aim of our study was to evaluate functional outcome of total hip replacement in fracture neck of femur.

Methods: In this prospective interventional study, we enrolled 25 patients after satisfying the inclusion and exclusion criteria. Harris Hip Score was assessed postoperatively at 6, 12 and 24 weeks and postoperatively prosthesis position is observed and analyzed radiologically. **Results:** The Harris hip score increased in all intervals from 6, 12, 24 weeks followup and was statistically significant (p value<0.001). Out of 25 patients 20 had excellent, 4 had good outcome and 1 had poor outcome. Out of 25 patients 23 had acetabular inclination was between 30° to 50° (Mean = 42.6 ± 4.43), 1 had < 30° and 1 had > 50°. Horizontal COR was equal to opposite side in all 25 patients and vertical COR was equal to opposite side in 22 patients. Femoral stem was found to be neutral in 22 patients, 2 had varus and 1 had valgus. In 23 patients anteversion was between 50-250 (Mean = 14.6 ± 5.24), 2 had anteversion < 50°. 1 patient limb length discrepancy of > 1 cm was seen. **Conclusion:** By our study total hip replacement for neck of femur fractures provided encouraging results. Adhering to proper surgical technique and maintaining post operative radiological parameters plays a crucial role in functional outcome. Hence we recommend total hip replacement as method in treating neck of femur fractures.

KEYWORDS : Harris hip score, Acetabular inclination, Center of rotation, Femoral stem positioning, Acetabular anteversion.**INTRODUCTION**

Femur neck fracture is referred to as an unresolved fracture. Despite various advancements there is still no simple system of care that can consistently treat this fracture successfully. For any orthopaedic surgeon, managing this fracture is a rigorous and difficult undertaking¹. Many of these fractures are unstable. Because of its peculiar blood supply a neck of femur fracture may cause circulatory disturbance leading to vascular necrosis and non-union. So every fracture neck of femur should be treated as emergency². Total hip replacement is a surgical procedure, which has relieved debilitating pain that originates from hip joint³.

METHODOLOGY

This prospective interventional study conducted in Mahatma Gandhi Medical College and Research Institute in Pondicherry between March 2021– April 2022 included 25 patients who underwent Total Hip Arthroplasty for neck of femur fractures. All the patients were selected for the study based on the inclusion and exclusion criteria.

Non salvageable neck of femur fractures (Nonunion, Avascular necrosis, Displaced femoral neck fractures in elderly, failed Osteosynthesis) were included in the study. Patients with septic foci, medically unfit patients, neuromuscular disorders, skin diseases at the surgical site were excluded in the study.

Patients were assembled into a single group. Supine X-ray of pelvis with both hips Ap View was taken for all patients. An informed and written consent was obtained from the patient. After getting the anaesthesia fitness, the patients were posted for Total Hip Replacement surgery. Post operatively X-ray pelvis with both hips AP view and X-ray hip lateral view were taken. Functional outcome of the patients was assessed using Harris Hip Score 6, 12, 24 weeks. Post operatively the prosthesis position was observed and analyzed radiologically.

RESULTS**Age**

The mean age of the patients involved in the study was 60.12 years.

Harris Hip Score

HARRIS HIP SCORE	6WKS	12 WKS	24 WKS	FINAL % AT 24 WKS
EXCELLENT	2	13	20	80%
GOOD	17	10	4	16%
FAIR	3	1	0	0%
POOR	3	1	1	4%

Gender Distribution

Among the 25 patients involved in the study 14 patients were females and 11 patients were males.

Acetabular Inclination

Out of 25 patients 23 had acetabular inclination between 30° - 50° (Mean = 42.6 ± 4.43) at 6 weeks followup. 1 had acetabular inclination above 50° and 1 had below 30°.

Horizontal Cor

In all 25 patients the horizontal COR was found to be equal to the opposite side.

Vertical Cor

Out of 25 patients in 21 had vertical COR equal to opposite side. In 3 it is increased and in 1 it is decreased.

Femoral Stem Positioning

Out of 25 patients in 22 stem position was neutral and in 2 stem was found to be in varus and in 1 stem was found to be in valgus.

Leg Length

Out of 25 patients 24 had limb length discrepancy of < 1CM. (1 CM= 10 mm). 1 had LLD > 1 CM.

Acetabular Anteversion

Out of 25 patients 23 had acetabular anteversion between 5° - 25° (Mean= 14.6 ± 5.24). 2 had acetabular anteversion less than 5°.

Case Illustration

Fig 1: Pre-op X-ray



Fig 2: Immediate Post-op X-ray

DISCUSSION

Age

The Mean age of the patients in present study was 60 years with a Range (35-79). Kannan et al⁴ reported Mean age to 63.8 years.

Side

Out of 25 patients, 13 were left hip while 12 were right hip operated. In similar study by Rohit Amar et al⁵ out of 120 patients 73 cases were right hip and 47 cases were left hip operated.

Harris Hip Score

In our study at the end of 24 weeks, 20 patients had excellent outcome, 4 patients had good outcome and 1 patient had poor outcome. Our findings were comparable with Kannan et al⁴ which had excellent outcome in 84% patients and good outcome in 12% and 1% had fair outcome. Rohit amar et al⁵ reported 54.17 % patients had excellent, 26.67 % had good and 8.33 % had fair and 10.83% had poor outcome. In our study out of 25 patients 23 had acetabular inclination between 30° and 50° (Mean= 42.6 ± 4.43). 1 had acetabular inclination above 50° and 1 had below 30°.

The normal range of inclination is between 30° and 50°. In similar study done by Rohit Amar et al⁵ out of 120 patients 94 had acetabular inclination between 30° to 45° and 14 had > 45° and 12 had < 30° acetabular inclination.

In our study out of 25 patients 23 had neutral stem position and 1 had varus and 1 had valgus. In a similar study done by Rohit amar et al⁵ out of 120 patients 92 had neutral and 17 had valgus and 11 had varus stem position.

In our study out of 25 patients in 22 patients the vertical COR is equal. 2 had increased and in 1 had decreased COR. In our study All 25 patients had horizontal COR equal.

In our study 24 had LLD < 1 cm (1 cm = 10mm) and 1 had LLD > 1 cm. In a study done by Bansal et al⁷ reported that more than 1 cm LLD was seen in 25 patients with overall mean discrepancy of 0.24 cm (Range 0 to 3 cm). Patil P et al⁸ reported that 2 patients had 1 cm lengthening and 1 Patient had 1.5 cm limb lengthening. In our study 23 patients had acetabular anteversion ranging 5° - 25° (Mean=14.6 ± 5.24). Normal value ranges from 5° to 25° anteversion as this allows adequate flexion of the hip⁶. 2 patients had acetabular anteversion less than 5°. In a study done by Olav reikeras et al⁹ the mean acetabular anteversion was reported to be 13.9 ± 10.1.

COMPLICATIONS

In present study only 1 patient (4%) had complication of anterior thigh pain. The patient with complaint of anterior thigh pain was managed conservatively with NSAID'S. Rohit amar et al⁵ reported that varus position of the stem may lead to complications such as anterior thigh pain.

LIMITATIONS

- Smaller sample size
- Need long term follow up

CONCLUSIONS

By our study total hip replacement for neck of femur fractures

provided encouraging results. Adhering to proper surgical technique and maintaining post operative radiological parameters plays a crucial role in functional outcome. Hence we recommend total hip replacement as method in treating neck of femur fractures.

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