Unstable Intertrochanteric Fractures: Hemiarthroplasty V/S Fixation

Zulfikar M. Patel[1*], Shaival S. Dalal[2], Kalpesh A. Mehta[3], Akash J. Shah[4]

[1,3]Assistant Professor, [2]3rd Year Resident, [4]2nd Year resident, Department of Orthopaedics, Civil Hospital Ahmedabad

***Corresponding Author:**
Email: drzulfikarpatel@yahoo.co.in

ABSTRACT

Background and Objectives: *For many decades, attempts have been made to overcome the difficulties which surgeons encounter in the treatment of proximal femoral fractures. Extra medullary and intramedullary implants have improved in recent years, although consensus is lacking concerning the definition and classification of unstable intertrochanteric fractures, with uncertainties regarding treatment. In this era of technologically sound and tested fixation methods we shall compare functional outcomes and complications of various methods available for unstable it fracture fixation.*

The purpose of this study is to analyze the role of primary hemi arthroplasty in cases of unstable osteoporotic intertrochanteric femur fractures and compare the outcomes with conventional fixation techniques to find out a better management plan for the patient

Materials and Methods: *This is a prospective study of fifty cases of unstable intertrochanteric fractures, either treated with primary replacement (hemi or total) or fixation. Between February 2012 and December 2012, fifty patients with an unstable comminuted intertrochanteric femoral fracture (AO/OTA type 31A2.2, A2.3, A3.2, A3.3) were enrolled in the study, which was approved by our institutional review board.*

Inclusion Criteria*:*

1. *More than 60 years of age.*
2. *All patients with unstable IT femur fracture type*
   a. *31- A2.2 and 31- A2.3 (AO/OTA classification)*
   b. *Posteromedial fragmentation*
   c. *Basicervical*
   d. *Reverse oblique*
   e. *Displaced greater trochanter (lateral wall fractures)*
   f. *Patient must be ambulatory before sustaining injury*

Exclusion Criteria:

a. *Chronically debilitated and bed ridden patients.*
b. *Compound fracture*
c. *Medically compromised patients- ASA grade iv &v*
d. *Local infection ¾ Stable fracture*

Results: *Maximum patients (88%) belonged to 60-80 years of age. Since most of the patient belong to elderly age group, medical comorbidities are very common.*

Average requirement of blood transfusion needed was significantly higher in hemi replacement group than in fixation group. (Z= 3.56, p<0.05). This indicated the surgical complexity of hemi replacement

There was significant shortening of limb in fixation group as compared to hemi replacement. (Z=6.98,p value <0.05)

Thus hemi replacement provided faster rehabilitation to the patient. This implies that those patients who had hemi replacement had a significantly better activity of daily living.

Harris hip scores were significantly better in hemi replacement group. (Z=4.31, p value<0.05) suggesting better functional outcomes. There was no significant difference between immediate postoperative complications though skin incision, operating time, and blood loss were significantly higher in hemi replacement group.(Z=0.7, p>0.05) but the rate of delayed complications and revision surgeries were significantly higher in fixation group. (p<0.05)

There was no significant difference in mortality rates of both groups despite more blood loss and duration of surgeries in hemi replacement group.

Interpretation and Conclusion: *In conclusion we state that hemi replacement arthroplasty, is a valid treatment option for mobile and mentally healthy patients, as compared to fixation for faster rehabilitation and better activity of daily living.*

Aims & Objectives:

- *To study the results of primary replacement (hemi or total) in unstable intertrochanteric fractures and compare it with conventional methods of fixation.*
- *To assess functional outcome in patients having unstable intertrochanteric fractures in both groups as per Harris hip score.*
- *To study the effect of pre-existing illness on final outcome of the patients in both groups.*
- *To study the stability of fixation in osteoporotic bones.*
- *To note any complication developed.*
- *To compare final outcome of this study with that of the other studies.*

INTRODUCTION

One of the most common fractures has been proximal femoral fracture as emphasized by this anecdote -"human beings come in the world through the pelvis and leave the world through the broken hips." Various operative procedures with different implants have been described for

the treatment of intertrochanteric fractures. Unstable intertrochanteric fractures are one of those mysteries which become more and more mysterious with advancing knowledge and better imaging modalities. For many decades, attempts have been made to overcome the difficulties which surgeons encounter in the treatment of proximal femoral fractures. Many questions have been raised regarding the configuration of a fixation device. No matter how much we are successful in other faculties of life but in this technologically advancing world it is crucial that we upgrade our systems to cope with these fractures to serve the mankind better.

MATERIALS AND METHODS

This is a prospective study of fifty cases of unstable intertrochanteric fractures, either treated with primary replacement (hemi or total) or fixation. Between February 2012 and December 2012, fifty patients with an unstable comminuted intertrochanteric femoral fracture (AO/OTA type 31A2.2, A2.3, A3.2, A3.3) were enrolled in the study, which was approved by our institutional review board. Written and informed consent of each of the patients was taken. The majority of patients fell at home.

Inclusion & Exclusion Criteria Inclusion & exclusion criteria for the study are as following:

- **Inclusion Criteria**

1. More than 60 years of age.
2. All patients with unstable IT femur fracture type

a. 31- A2.2 and 31- A2.3 (AO/OTA classification)
b. Posteromedial fragmentation
c. Basicervical
d. Reverse oblique
e. Displaced greater trochanter (lateral wall fractures)
f. Patient must be ambulatory before sustaining injury

- **Exclusion Criteria**

a. Chronically debilitated and bed ridden patients
b. Compound fracture
c. Medically compromised patients- ASA grade iv & v
d. Local infection
e. Stable fracture

MANAGEMENT PROTOCOL

At our institute the following treatment protocol for intertrochanteric fractures was followed. After initial assessment of airway, breathing and circulation status of the patient, and stabilization of vitals, thorough history and general examination was done. Head injury, thoracic and abdominal trauma were ruled out. Local examination included tenderness at fracture site as well as distal neurovascular status, i.e. distal pulsations and movements. X rays were taken thereafter and patient was stabilized in the ward by giving skin traction of 5 kg with anklet. IV analgesics were administered. The limb was placed on Bohler Brown splint with 30 degrees of abduction. The fracture was then classified according to the AO classification. The surgery was planned after routine investigations and appropriate medical fitness of the patient.

Treatment option for the patients with unstable intertro chantric fractures were the following:

1. Fixation using a DHS or PFN.
2. Hemi replacement using cemented bipolar prosthesis.

Patients were divided in each group randomly. After they provided informed consent, the patients were randomized into two treatment groups with use of computer-generated random numbers. No patient refused to participate in the study. Twenty five patients (Group I) were treated with a hemi arthroplasty. Twenty five patients (Group II) were treated with a conventional method of fixation (proximal femoral nail [PFN], dynamic hip screw (DHS).

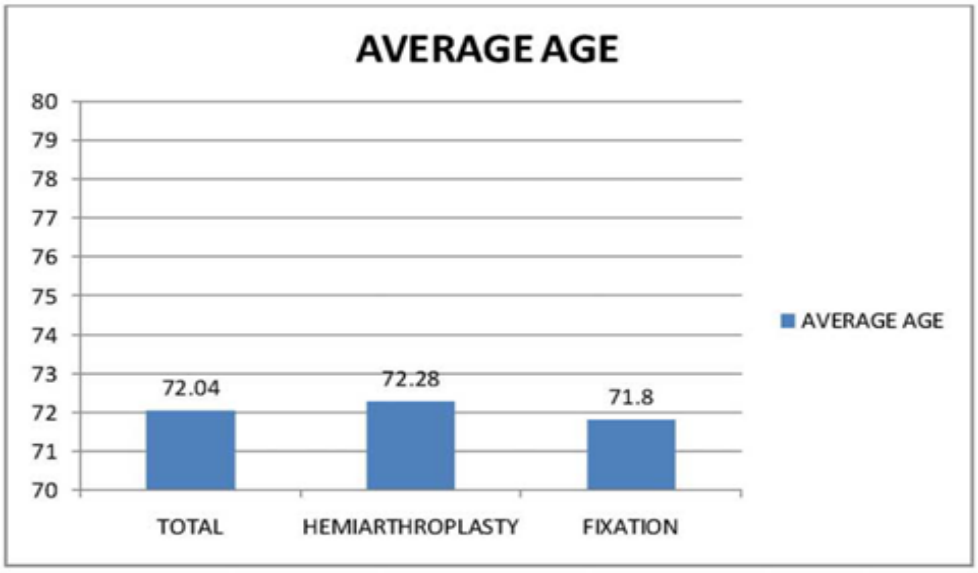
Follow-Up

Patients were examined postoperatively at 6 weeks, 3 months, 6 months, and 1 year. At each follow-up visit, a clinical-radiological examination was done and the patient was evaluated using the Harris hip score (HHS) and were graded as <70 poor, 70-79 Fair, 80-89 Good and 90-100 Excellent. Scores above 80 were considered as satisfactory outcomes and those below 80 were considered unsatisfactory. Antero-posterior and lateral radiographs of the hip were analyzed at each follow-up to note evidence of loosening. Bony union was determined by clinical and radiological examinations in an out-patient clinic. Analysis of data was done by applying appropriate statistical tests.

RESULTS AND OBSERVATIONS

Patients were divided in each group randomly. After they provided informed consent, the patients were randomized into two treatment groups with use of computer-generated random numbers. No patient refused to participate in the study. Twenty five patients (Group I) were treated with a hemi arthroplasty. Twenty-Five patients (Group II) were treated with a conventional method of fixation (proximal femoral nail [PFN], or a dynamic hip screw (DHS). All the cases were followed up for a period ranging from 1 month to 2 year with an average of 13 months. The functional results were evaluated on the basis of Harris hip scoring system.

Graph 1: Mean Age

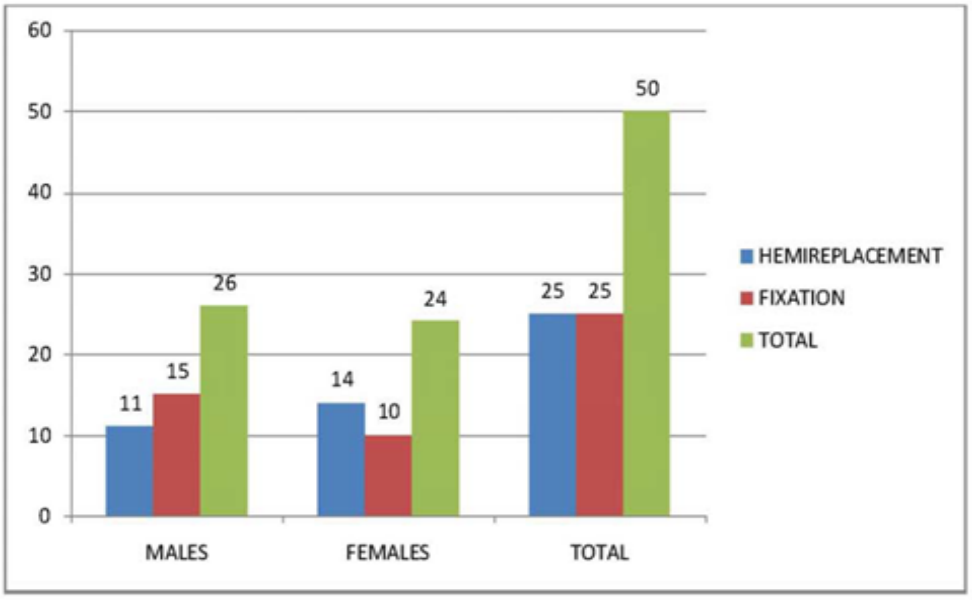


1. AGE

Average age of patients was 72.04 years. In hemi replacement group it was 72.28 years and in fixation group it was 71.8 years. Unstable intertrochanteric fractures are more common in old age group.

Maximum patients (88%) belonged to 60-80 years of age.

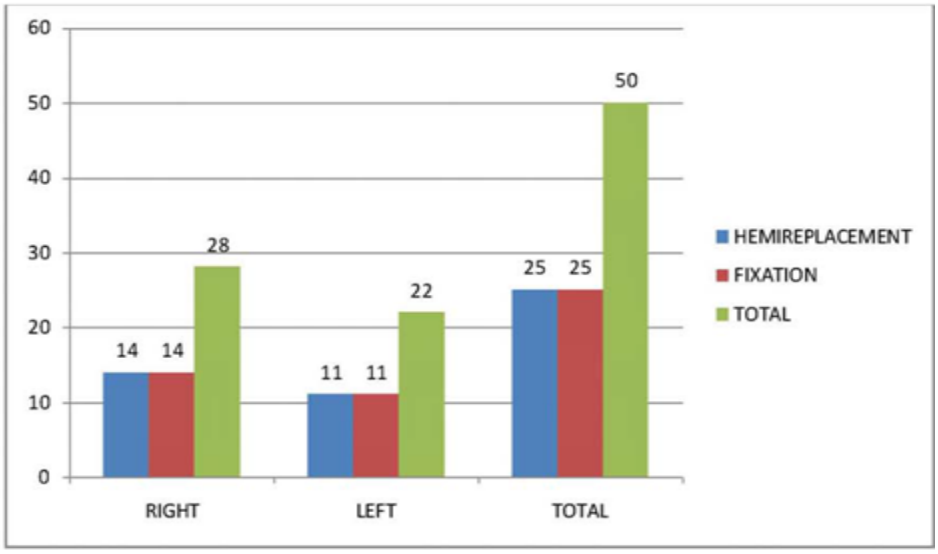
Graph 2: Distribution according to sex



2. **SEX DISTRIBUTION**

Total numbers of males (26) almost equal as total numbers of females (24), the difference of which is not statistically significant. (chi2=1.28. p value=0.25>0.05)

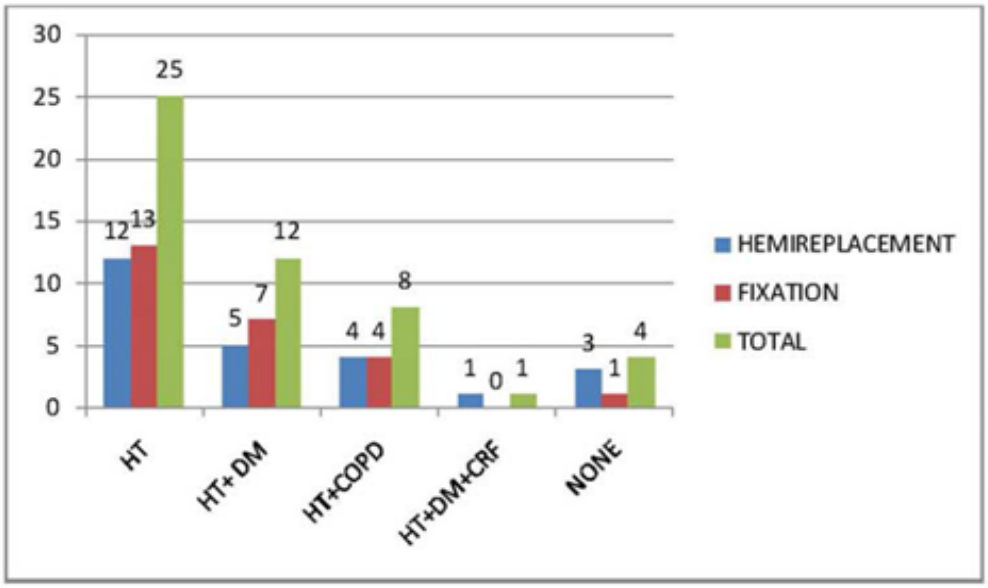
Graph 3: Distribution According To Side



3. **SIDE DISTRIBUTION**

In both groups, right side was more involved, which is not statistically significant. (Z=0, p>0.05)

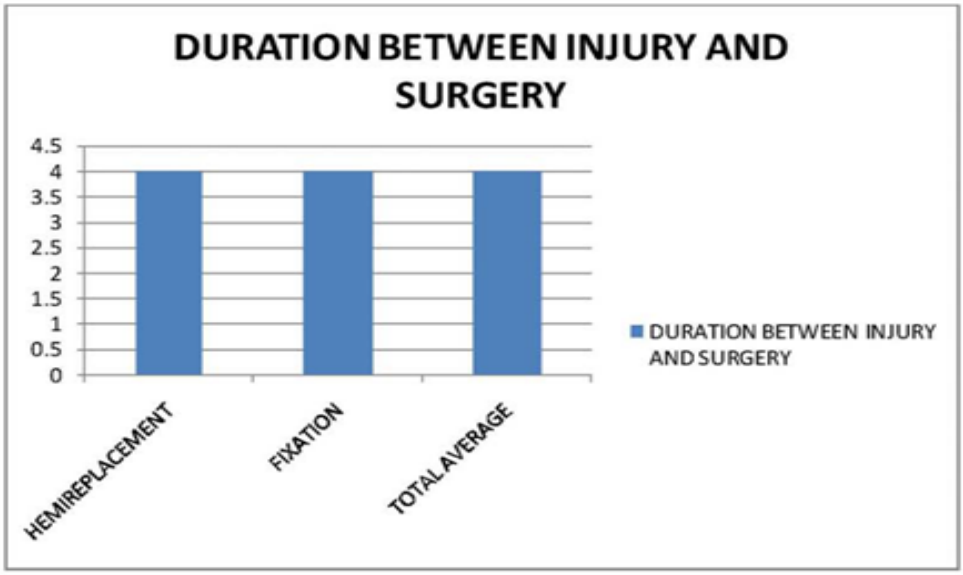
Graph 4: Associated Medical Comorbidities



4. ASSOCIATED MEDICAL COMORBIDITIES

Hypertension, COPD and diabetes mellitus were frequently observed medical comorbidities. Since most of the patient belong to elderly age group, medical comorbidities are very common. Only 4 out of 50 patients did not have medical comorbidities.

Graph 5: Mean Duration between Injury and Surgery



5. DURATION BETWEEN INJURY AND SURGERY

Injury-surgery interval was average 4 days in both the groups. Early operative treatment ensures less prolonged bed rest, faster rehabilitation and decreases chances of atelectasis, pneumonia, and deep venous thrombosis. There was no statistically significant difference between the 2 groups. (Z=0, p>0.05)

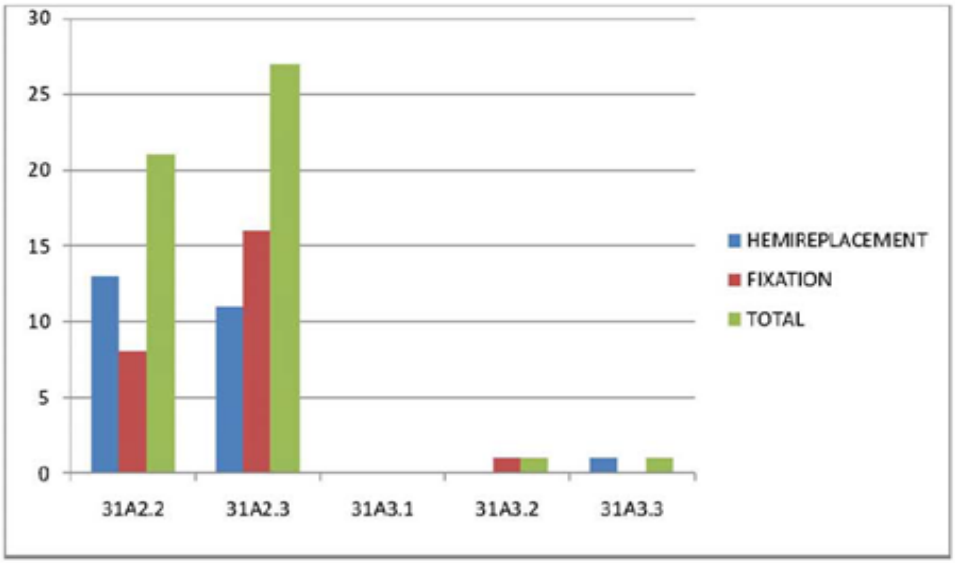
6. **DURATION OF HOSPITAL STAY**

Hospital stay was more in hemi replacement group (12.92 days) as compared to conventional group of fixation (10.84 days). Minimum duration of stay was 6 days and maximum duration was 30 days. The difference between the duration of stay for both the groups was not significant. (Z=1.51, p value>0.05)

7. FRACTURE TYPE

The distribution among both the group was almost same. Majority of them were AO/OTA type 31A2.3, which is a highly comminuted type of fracture, seen in elderly patients because of osteoporosis. Fractures below 31A2.2 were excluded from the study.

Graph 6: Fracture Type According to ao Classification



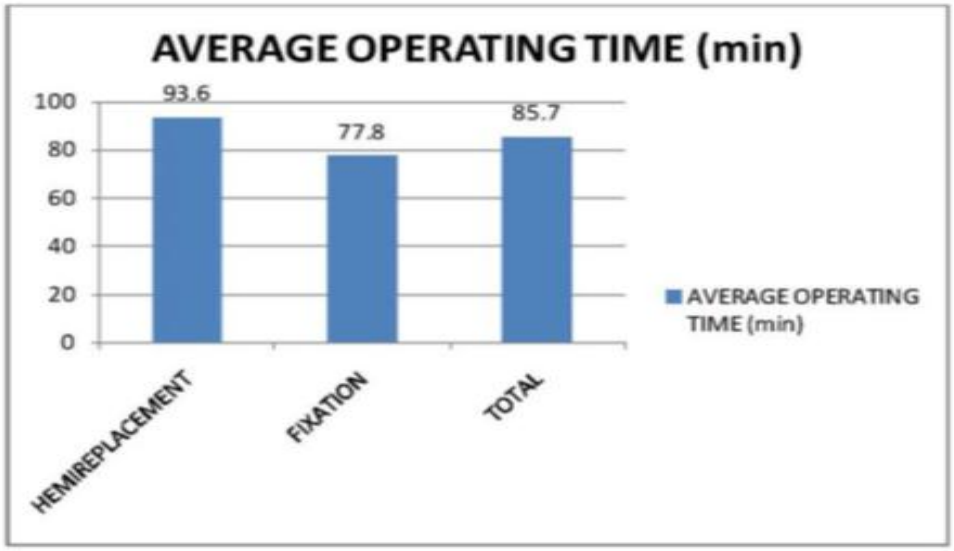
8. **INCISION LENGTH & BLOOD LOSS**

Average incision was significantly longer in hemi replacement group (11.92cm) greater than the conventional group (8.36cm).(Z=16.18, p<0.05) The following blood loss figure was a sum of per op and post op drain, which was an average of 352 ml in hemi replacement and 154 ml in fixation group. Blood loss was significantly higher in hemi replacement group. (Z=7.29, p <0.05) Because of excess blood loss in hemi replacement group, blood transfusion was required in 21 patients (mean 1.04 units per patient) whereas in fixation group, transfusion was needed in 10 patients. (Mean 0.41 units per patient). Average requirement of blood transfusion needed was also significantly higher in 52 hemi replacement group than in fixation group. (Z= 3.56, p<0.05). This indicated the surgical complexity of hemi replacement surgery.

9. OPERATING TIME

Operative time was significantly more in hemi replacement group (93.6 min) as compared to conventional group(77.8 min)(Z=4.46, p value<0.05). This implies increased duration of anaesthesia, and a complex surgery.

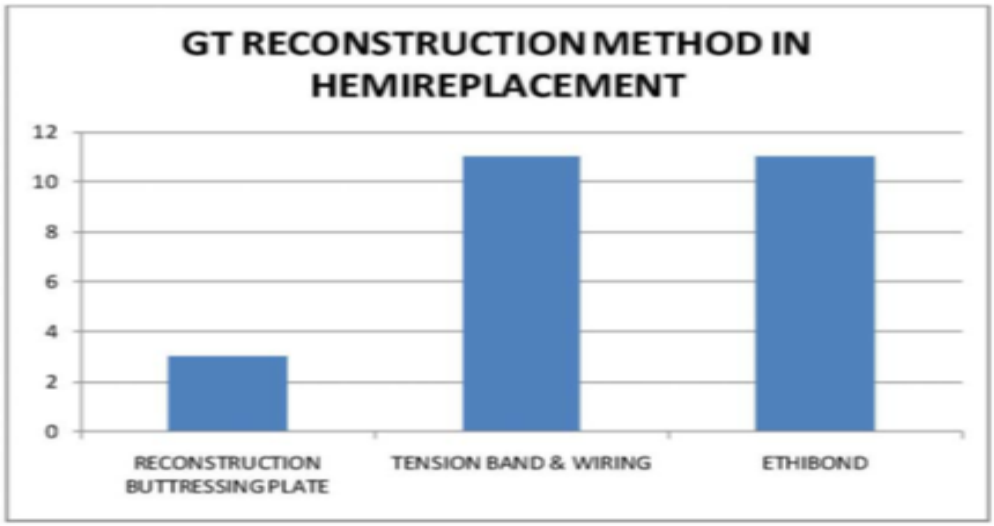
Graph 7: Average Operating Time (Min)



10. METHOD OF GREATER TROCHANTER FIXATION

According to the fracture pattern, greater trochanter was fixed and reconstructed either using a tension band wiring along with k wire fixation, or a reconstruction contoured buttressing plate, or ethibond sutures. Lesser trochanter was always reconstructed with ethibond.

Graph 8: GT Reconstruction Method in Hemi replacement



11. **LIMB LENGTH DISCREPENCY**

Shortening was average 0.34 cm in hemi replacement group and 1.28 cm in fixation group. There was no case of lengthening in hemi replacement group. There was significant shortening in fixation group as compared to hemi replacement. (Z=6.98, p value <0.05) This shortening is an important cause of limp while walking.

Table: Average Limb Length Discrepancy

Group	Limb Length Discrepancy (Shortening)
Hemi-replacement	0.34
Fixation	1.28
Total	0.81

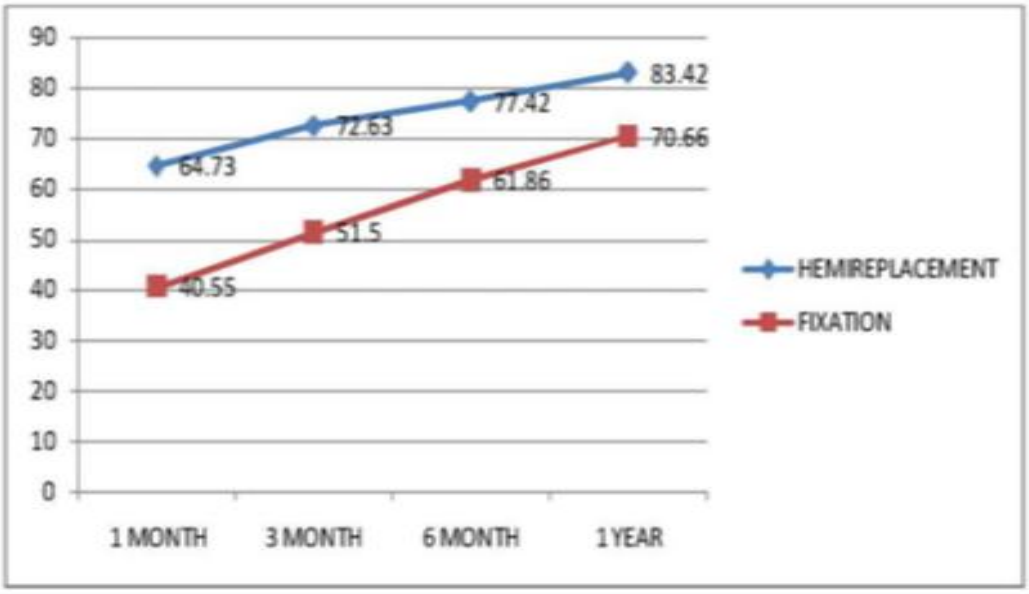
12. **POSTOP AMBULATION**

Ambulation was started on 2nd or 3rd postoperative day in group 1 within an average of 2.91 days. In fixation group, ambulation was started average after 32 days. (Z=7.48, p<0.05) Patients with hemi replacement were walking independently without support by average 36th day, whereas those in fixation group walked independently by 70th day. (Z=10.13, p<0.05). So, patients of hemi replacement group started ambulation and independent walking significantly earlier than those with fixation group. Thus hemi replacement provided faster rehabilitation to the patient.

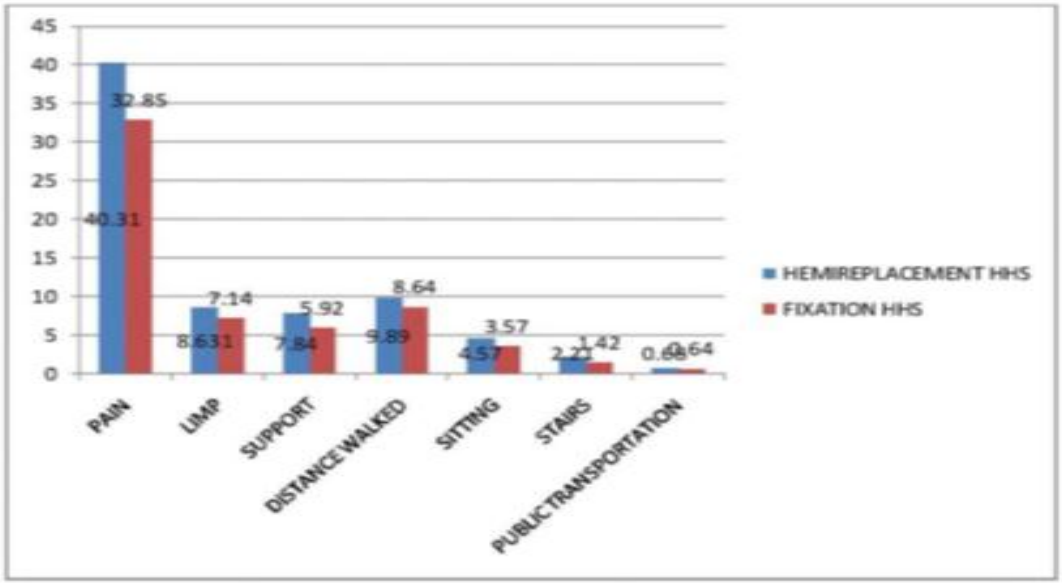
13. HARRIS HIP SCORE

Evaluation of postoperative functional status of all patients at the 1, 3, 6, and 12 months interval with Harris hip scoring system showed following results. Average Harris hip score was significantly higher in hemi replacement group at 1, 3, 6, and 12 months. (p value<0.05). The patients of hemi replacement group were significantly better in terms of pain, limping, use of support for walking, sitting and stair climbing. (p<0.05) However, patients of both the groups avoided public transport, so there was no statistically significant difference between the two groups in terms of public transport. (Z=0.23, p >0.05). This implies that those patients who had hemi replacement had a significantly better activity of daily living.

Graph 9: Mean Harriship Score Follwup



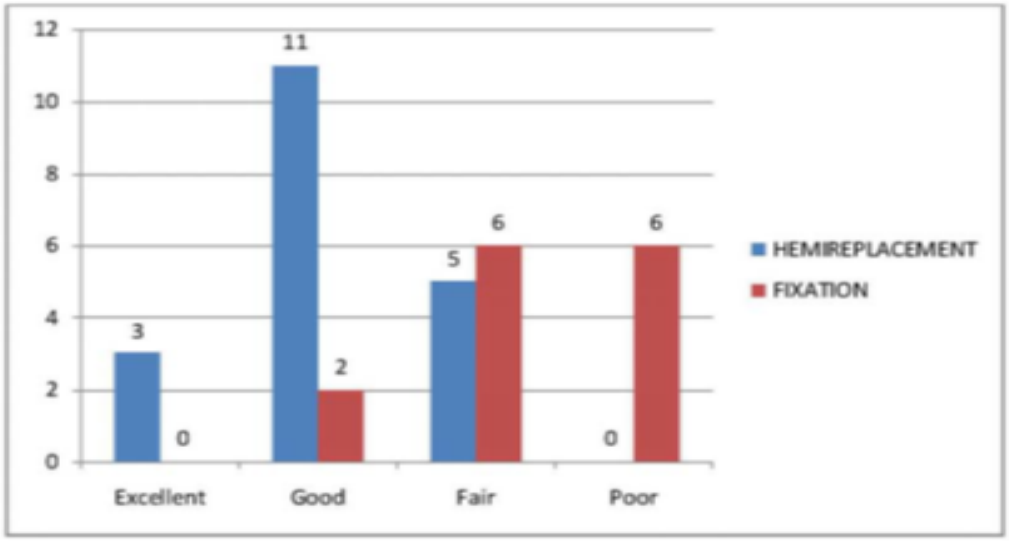
Graph 10: Different Parameters of Harris Hip Score on Final Follow-up



14. **FUNCTIONAL OUTCOMES**

At final follow-up visit, a clinical-radiological examination was done and the patient was evaluated using the Harris hip score (HHS) and the scores were graded as <70 poor, 70-79 Fair, 80-89 Good and 90-100 Excellent. Scores above 80 were considered as satisfactory outcomes and those below 80 were considered unsatisfactory. Functional outcomes were considered satisfactory in 14 out of 19 patients of hemi replacement group (3 excellent, 11 good), whereas 5 patients had unsatisfactory outcomes. (5 fair, 0 poor). In fixation group, only 2 out of 14 patients had satisfactory outcomes. They were significantly better in hemi replacement group. (Z=4.31, p value<0.05)

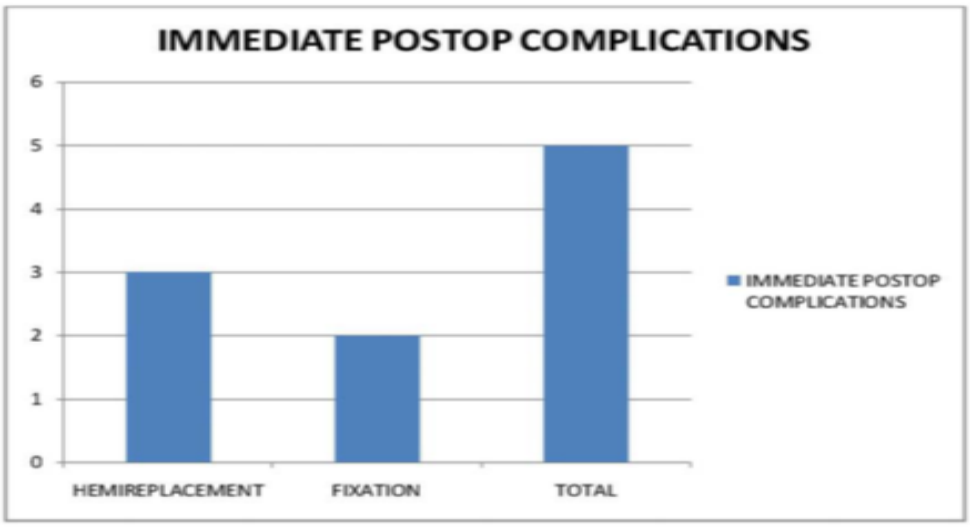
Graph 11: Functional Outcomes



15. **IMMEDIATE POSTOPERATIVE COMPLICATIONS**

There were 3 immediate postoperative complications in hemi replacement group which included 1 foot drop, and 2 deep seated infections. In fixation group, 1 patient had lag screw cut out and one patient had deep seated infection. There was no significant difference between immediate postoperative complications though skin incision, operating time, and blood loss were significantly higher in hemi replacement group. (Z=0.7, p>0.05)

Graph 12: Immediate Post-Operative Complications



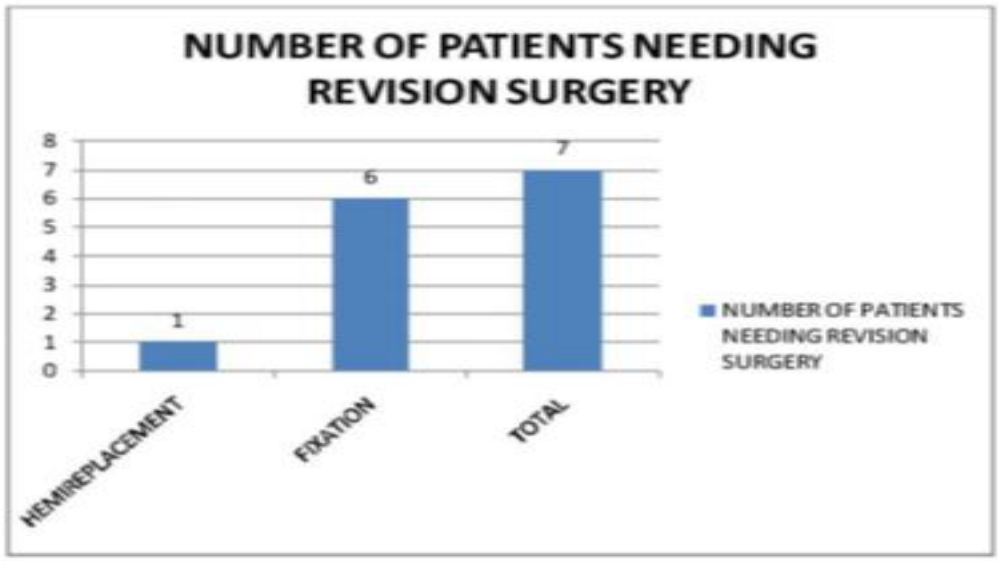
16. **DELAYED POSTOPERATIVE COMPLICATIONS AND REVISION SURGERY**

Among the hemi replacement group, out of 25 patients, 5 patients died, of which 1 patient died of septicaemia and 4 others died because of medical comorbidities, not related to surgery. 1 patient was lost to follow-up. 1 patient had dislocation of the bipolar prosthesis on postoperative day 14. Among the fixation group, 4 patients expired because of medical comorbidities. Among the others, there were 4 lag screw cut-outs and 2 implant failures with non-union, which had to be revised by doing implant removal and hemi-replacement. 1 patient was lost to follow-up. The rate of delayed complications was also significantly higher in fixation group. ($p<0.05$)

17. **NUMBER OF REVISION SURGERIES REQUIRED**

In hemi replacement group, only 1 patients required revision surgery (open reduction of dislocation), whereas in fixation group, 6 patients needed revision surgery. The revision surgery rate for fixation group was significantly higher ($Z=2.19$, $p<0.05$) than hemi replacement group.

Graph 13: Number of Patients needing Revision Surgery



18. **MORTALITY RATE**

Of 25 patients of hemi replacement group, 1 patient was lost to follow-up. 5 patients had died by the end of 1 year, giving a mortality rate of 20.83%. In fixation group, out of 25, 1 patient was lost to follow up and 6 patients had undergone revision surgery. 4 patients died during the course of 1 year. So mortality rate for fixation group was 22.22%. Mortality rate was almost similar in both the groups. ($Z=0.13$, $p>0.05$) Thus there was no significant difference in mortality rates of both groups despite more blood loss and duration of surgeries in hemi replacement group.

DISCUSSION

The management of unstable osteoporotic intertrochanteric fractures in elderly is challenging because of difficult anatomical reduction, poor bone quality, and sometimes a need to protect the fracture from stresses of weight bearing. Internal fixation in these cases usually involves prolonged bed rest or limited ambulation, to prevent implant failure secondary to osteoporosis. This might result in higher chances of complications like pulmonary embolism, deep vein thrombosis, pneumonia, and decubitus ulcer. On the other hand, using hemi replacement, patients bear weight immediately, they are encouraged to walk, move and exercise the involved limb and limit bed rest. Moreover, elderly patients, who are often unable to co-operate with partial weight-bearing required after an internal fixation accept full weight-bearing more easily.

Only patients above the age of 60 years were included in the study. Average age of patients was 72.04 years. The study of Shin Yoon Kim et al included patients only above 75 years. Their mean age was 81-82 years. In the study of Sancheti et al, mean age was 77 years (62-89). 67,68,73,76

Osteoporosis is significantly more common in women of old age as compared to men because of their post-menopausal status with resultant estrogen deficiency. So fractures occur more commonly in women. But our series included an almost equal number of men (26) and women (24). Sancheti et al, Kayali et al, Haentjen et al, all had a higher female-to-male ratio. 68, 73, 76

Involvement of right or left extremity is a matter of chance. Fracture pattern was almost same in both groups. 24 out of 25 patients of both the groups belonged to 31A2.2, 31A2.3 classification. 27 out of 50 patients belonged to 31A2.3 group, which is a highly comminuted type of fracture. Thus, in elderly patients, because of osteoporosis, most of the fractures which occur are of a highly comminuted type. This fact influences the election of the type of implant for surgery while preoperative planning. Kayali et al, and Shin yoonkim et al had included 31A2.1 type fractures as well in the study.

Diabetes mellitus or hypertension were present in 38 (76%) of the patients under the study. In our study average time between injury and operation was 4 days. (1 to 9 days) This early operative treatment greatly reduces complications of prolonged bed rest. As time interval increases, surgery becomes difficult due to soft tissue contracture. Below knee skin traction or skeletal traction was given to regain limb length pre- operatively so minimizing difficulties in reduction of prosthesis. In the study of K H Sancheti et al, the mean injury-surgery delay was 5.61 days (2-14 days).

These medical comorbidities play a decisive factor in preoperative, intraoperative as well as postoperative course of a patient. A sincere attempt must be made to diagnose and treat the associated medical conditions preoperatively before the patient is taken for surgery to minimize mortality and morbidity. Besides, prolonged recumbency and increased time to rehabilitation can significantly affect the quality of life of a person. Hemi replacement provides very early rehabilitation as compared to fixation, without increasing the number of complications. So it becomes a better operative option in elderly patients with comorbidities.

Intraoperative, one must select a surgery which has minimum bloodless and operating time to prevent complications. Though hemi replacement group has significantly higher operating time and bloodless, it does not add to the morbidity of the patient, as there were no intra operative complications, and the rate of immediate complications was not significantly higher than the fixation group. Post operatively, these associated co-morbidities significantly affect life expectancy after surgery, as all the patients who expired during our follow up period had significant co morbidities. In both the groups, there was no difference in terms of mortality as well.

Incision length and blood loss were significantly more in group I requiring 26 blood transfusions in group I. Blood loss in hemi replacement group was 352 ml and it was 154 ml in fixation group. Average requirement of transfusion units was 1.04 for hemi replacement group and0.41 units for fixation group. Surgery was prolonged in group I (93.6min) as compared to group II (77.8 min). The incision length, blood loss, 65requirement of blood transfusion and operating time were significantly higher in hemi replacement group than the fixation group. (p value <0.05).

All these factors can lead to increase in intra operative complication and post-operative infection. But there were no intraoperative or anaesthetic complications with the increase in operating time in our study. Shin yoonkim et al had 511 ml blood loss and duration 96 minutes in hemi replacement group and 168 ml and 60minutes in fixation group. Thus blood loss and operating time were higher in hemi replacement group as well. Sancheti et al had an average duration of surgery of 71 minutes and average blood loss of 350 ml in his study which included only the patients of hemi replacement. Kayali et al found no significant difference in operating time, blood loss and transfusion requirements in his study. 67,68,73

Ambulation was started significantly late in group II (36.22 days) compared to group I (2.91 days) (p value <0.05). Allowing early ambulation in hemi replacement group significantly improves the rehabilitation, functional outcome, activities of daily living and quality of life in patients, markedly reducing the morbidity of recumbency. Time to postoperative ambulation with walker was 4.2 days

in the study of K H Sancheti. In the study of Shin Yoon Kim, the difference between walking time was not significant. Patients in fixation group walked at 8.8 days and those in hemi replacement group walked at 7.8days. Same was the case in the study of Kayali et al, in which patients of hemi replacement group started walking at an average of 11 days, while those of fixation had started walking in just 10 days. 67,73 This lack of coincidence with the other studies may be due to the fact that we did not allow early ambulation in the patients operated for fixation by dynamic hip screw for the fear of implant failure, lag screw cut-out, loss of reduction and excessive collapse.

Average duration of hospital stay was in the range of 6-30 days. It was more in hemi replacement group (12.92 days) as compared to conventional group of fixation (10.84 days), but the difference between the stay was not significant. (p value>0.05). There was no significant difference in the duration of stay in the studies of Kayali et al (13 days, 12 days), Shim yoonkim et al between the 2 groups. The average duration of hospital stay in the study of Sancheti et al was 10.96 days, which very well coincides with our study. 67, 68,73 Harris hip score was evaluated at 1, 3, 6, and 12 months in both groups. The score was significantly higher (p value<0.05) in hemi replacement group at all the evaluations. This implies that rehabilitation was significantly faster in patients with hemi replacement. At1 year follow up, pain, limp, support needed for walking, duration of sitting, and stair climbing, were significantly better in hemi replacement group as compared to fixation group. Thus, rehabilitation and functional outcomes are very good in patients with hemi replacement than fixation. In the study of Shin Yoon Kim, Harris hip score was 80 in hemi replacement group and 82 in fixation group, with no significant difference in the functional outcomes of 2 groups. Mean Harris hip score of Sancheti et al was 84.8, which coincides with the functional outcome of hemi replacement group of our study.67,68,73

There were 3 (12%) immediate postoperative complications in hemi replacement group. 1 patient had foot drop immediately after surgery which has not recovered after 1 year of follow-up. 2 (8%) patients developed deep seated infection which was treated with injectable antibiotics. One of those patients died of septicemia on 25thpostoperative day. The other patient responded to debridement and was lost to follow-up after a stay of 30 days. Haentjen had infection rate of3% and 2% in groups 1 and 2 respectively. There was no foot drop in the study of Haentjen et al. The immediate postoperative complications in the study of Shin yoonkim were 1 dislocation, 1 deep vein thrombosis, 1 foot drop, and 1 superficial infection, with a complication rate of 13.79% in hemi replacement group, whereas there was only 1 complication in fixation group. (3.4%) deep vein thrombosis did not occur in our study because prophylaxis was given to all patients.67,76 Only 1 dislocation (5.26%) has occurred in our study. The low rate of dislocation might be due to the "through fracture approach" with preservation of the external rotators insertion, stem placement with proper ante version and desired angle, proper tensioning of the muscles, greater and lesser trochanter fixed into anatomical position with proper tensioning of attached muscles and postop care. Lateral thigh pain was not observed in any of patients in our study. Stem loosening, acetabular erosions and such other complication need a long term follow up which is the limitation of our study. The dislocation rate in Shin yoonkim et al was 7.6%. There were no dislocation or per prosthetic fractures in other studies.

Using internal fixation devices, high rates of local and general complications have been reported. The considerable incidence of general complications (such as pulmonary embolism, deep venous thrombosis, pneumonia) is related to a restricted weight-bearing, causing a long bed rest period and consequently a high mortality rate. In our study, there were no increases in medical co morbidities in group II as compared to group I with delayed ambulation. But patient's feeling of wellbeing and confidence were gained with early ambulation. Cross leg sitting and squatting was not recommended in group I which was a concern for the Indian people life style as these are frequently used in daily living. Unstable intertrochanteric fracture had inherited tendency for difficult reduction due to fracture geometry and muscle pull, and70excessive collapse lead to shortening of limb which in turn increase post-operative limp and poor functional outcome. Limb shortening was 0.34cm in group I and 1.28 cm in group II. There was significant difference in the mean limb length of both the groups, (p value<0.05) , which explains worse functional outcomes in fixation group in terms of limping.

Conflicting reports about postoperative mortality in cases with primary hemi arthroplasty are cited in the literature. Kesmezacare et al75reported postoperative mortality in 34.2% after a mean of 13 months and in 48.8% after a mean of 6 months in patients treated with internal fixation and end prosthesis, respectively. Haentjen et al reported a mortality rate of 35% in hemi replacement and 24 % in fixation group. In our study, mortality rate was 20.83% in group I (hemi-replacement) and22.22 % in group II (fixation). Though the difference between the mortality rates is not significant, (p value >0.05), there was still a higher mortality among fixation group, which can be attributed to prolonged immobilization, and increased number of revision surgeries in a patient. This study had several limitations like small sample size and shorter duration of follow up. Potential long-term problems associated with prosthetic replacement, such as loosening, acetabular erosion, stem failure, late infection, and late dislocation, may yet occur and require a long term follow-up.

CONCLUSION

Excessive collapse, loss of fixation, and cut-out of the lag screw resulting in poor function remain problems associated with internal fixation of unstable intertrochanteric fractures in elderly patients with osteoporotic bone. To allow earlier postoperative weight-bearing and to avoid excessive collapse at the fracture site, prosthetic replacement especially for the treatments of unstable inter trochanteric fracture is a valid treatment option. This procedure offers

faster recovery and rehabilitation with little risk of mechanical failure, avoids the risks associated with internal fixation and enables the patient to maintain a good level of function beginning in the immediate post-operative period. It also avoid sa revision surgery in elderly patients with medical comorbidities thereby decreasing morbidity to a great extent.74 Late complications with the prosthesis use are still matter of debate and require a long term follow up and big sample size for proper conclusion.

In conclusion we state that hemi replacement arthroplasty, is avalid treatment option for mobile and mentally healthy patients, as compared to fixation for faster rehabilitation and better activity of daily living.

REFERENCES

1. George W. Wood 2: General Principles Of Fracture Management; Campbell's Operative Orthopedics Vol.3,10th international edition,2003.
2. David G. La Velle: Fractures of Hip; Campbell's Operative Orthopaedics Vol. IU, I th International Edition, 2003.
3. Bucholz RW, Heckman JD, Koval KJ, Zukerman JD. Rockwood and Green's fractures in adults. 6th ed. Philadelphia: Lippincott Williams and Wilkins; 2005.
4. Richard S Goodman, MD, JD, FAAOS: Emedicine Specialities; Orthopaedic Surgery; Hip; Intertrochanteric Hip Fractures; Jul 6, 2006.
5. Smith-Petersen M. Treatment of fractures of the neck of the femur by internal fixation. Surg Gynecol Obstet 1937;64:287.
6. Wescott H. Preliminary report of a method of internal fixation of transcervical fractures of the neck of the femur in the aged. VA Me Monthly 1932;59:197.
7. King T. Technique for surgical fixation of the hip (transl). Med J Aust 1934;1:5.
8. Henderson M. Hip fracture treatment. Proc Staff Meet Mayo Clin1936;2:573.
9. Henry M. Lateral introduction of the screw-bolt in intracapsularfracture of the hip. J Bone Joint Surg Am 1938;20(2):400-404.76.
10. Lippmann R. Experiences with the corkscrew bolt. J Bone Joint Surg Am 1939;21(3): 735-746.
11. Kim S-YK, Yong-Goo H. Cementlesscalcar-replacement hemiarthroplasty compared with intramedullary fixation of unstable intertrochanteric fractures. A prospective, randomized study. J Bone Joint Surg Am 2005;87(10):2186-219.
12. Haentjens P, Casteleyn PP, De Boeck H, et al. Treatment of unstable intertrochanteric and subtrochanteric fractures in elderly patients. Primary bipolar arthroplasty compared with internal fixation. J Bone Joint Surg Am 1989;71(8):1214-1225.
13. Indian Journal of Orthopedics-2010;volume-44;page:428-34; Primary hemi arthroplasty for unstable osteoporotic intertrochanteric femur fractures in the elderly: a retrospective case series; KH Sancheti, PK Sancheti, AK Shyam, S Patil, Q Dhariwal, R Joshi; Sancheti Institute of Orthopaedics and Rehabilitation, Pune, Maharashatra, India.
14. Journal of Orthopaedic Surgery 2006;14(3):240-4; Treatment for unstable intertrochanteric fractures in elderly patients: internal fixation versus cone hemiarthroplasty; C Kayali, H Agus, S Ozluk; Second Clinic of Orthopaedics and raumatology, Tepecik Education and Research Hospital, Izmir, Turkey; C Sanli, Gazi State Hospital, Samsun, Turkey.