INTRODUCTION: Our study has aimed to assess extra-capsular neck femur fractures and mainly on comparing three different modalities of treatment that were used in our patient group namely proximal femur nail, dynamic hip screw and Ender's nail. Materials and methods: 82 patients from May 2012-13 having extra-capsular proximal femur fractures. 76 patients were operated using any of the three modalities. Cases were followed and evaluated at 6 weeks interval for 6 months, the results were evaluated and recorded radiologically and functionally as per criteria’s laid down by Harris hip score. The study comprises of data of sixty patients which followed up for 6 months, rest of the patients were lost to attrition. Results: We found that in type III and type IV inter-trochantric and sub-trochantric fractures proximal femoral nail implants have better results as compared to others (Dynamic Hip Screw & Ender’s nail). Weight bearing was earliest in those patients operated with proximal femur nail, optimal range of motion of hip, cross leg sitting and higher harris hip scores were seen in cases of proximal femur nails and were least in those of Ender’s nails. Radiologically union and alignment was seen in higher percentage in those patients of proximal femoral nail group and were these with varus collapse were seen mostly in patients who were operated using Ender’s nail. Infection rate were higher in patients operated using dynamic hip screw mostly due to open reduction.

MATERIALS AND METHODS: 82 patients presented to our orthopaedic department from May 2012-13 having extra-capsular proximal femur fractures, fractures were one to four days old. 76 were operated using any of the three modalities, the rest 6 were medically unfit for surgery and were treated conservatively by giving skeletal traction using Steinmann pin. Patients were divided in a random basis and allotted to any of the three groups. Patients were operated 2 to 4 days after the day of presentation in our department as per fitness. Cases were followed and evaluated at 6 weeks interval for 6 months, the results were evaluated and recorded radiologically and functionally as per criteria’s laid down by Harris hip score. Radiological parameters assessed were quality of bone, neck shaft angle, quality of reconstruction of postero-medial cortex, evidence of radiological union and any implant failures. The study comprises of data of sixty patients which followed up for 6 months, rest of the patients were lost to attrition. For statistical analysis fisher test was used.

RESULTS: Patients having extra-capsular proximal femur fractures were divided into those having inter-trochantric (I.T) & those having sub-trochantric (S.T) fractures. (Table 1)

<table>
<thead>
<tr>
<th>Age Group (in yrs.)</th>
<th>I.T.</th>
<th>S.T.</th>
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<tbody>
<tr>
<td>Less than 40</td>
<td>3 (5%)</td>
<td>7 (11.6%)</td>
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<tr>
<td>40 to 60</td>
<td>9 (15%)</td>
<td>11 (18.3%)</td>
</tr>
<tr>
<td>More than 60</td>
<td>23 (38.33%)</td>
<td>7 (11.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>25</td>
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Table 1: Distribution of all patients as per fracture type and further into age groups.

L.T.fractures were more common in elder age group whereas S.T fractures were more common in younger age group. (p=0.027)

Out of the 35 patients having inter-trochantric fractures 24 (40%) were males and 11 (18.33%) were females. Out of the 25 patients with sub-trochantric fractures 17 (28.33%) were males and 8 (13.33%) were females. No statistical difference was found in between the two fracture types (p=0.9).

Out of the 35 patients having inter-trochantric fractures 11 (18.33%) were operated using proximal femur nail, 12 (20%) were operated using Dynamic hip screw and 12 (20%) were operated using Ender’s nail. Out of the 25 patients with sub-trochantric fractures 9 (15%) were operated using proximal femur nail, 8 (13.33%) were operated using Dynamic hip screw and 8 (13.33%) were operated using Ender’s nail.

Out of the 35 patients having inter-trochantric fractures significantly shortening of operated lower limb was not seen in patients operated with proximal femur nail, it was 25 % in case of patients operated with Dynamic Hip Screw and 33.33% in case of those operated using Ender’s nail. Out of 25 patients with sub-trochantric fractures shortening was 11.11% in patients operated with proximal femur nail, it was 25 % in case of patients operated with Dynamic Hip Screw and 50% in case of those operated using Ender’s nail. Shortening was observed more with Ender’s nail in both groups of operated inter-trochantric fractures and those with sub-trochantric fractures.

As far as complications are concerned rate of infection in case of proximal femur nail were significantly low (5%) probably as it was performed in a close manner in most of the patients, in one patient in which it got infected, had duration of surgery more than 2 hrs and surgeon had to resort to open reduction and fixation as reduction was not achieved in a closed manner.
Infection rate was higher in open surgeries where dynamic hip screw was used (20%) duration of surgery was time appropriate in all these cases & mostly were due to nature of surgery and patient factor. Infection rate was 10% in cases of patients operated using Ender’s nail, infection was mostly at the site of nail insertion in both the cases, in these cases nail was associated with back out and was found to be exposed, poor patient status was also an additive factor. Implant back out leading to impingement pain at times was present in 5% of patients operated with proximal femur nail, 10% of patients operated with dynamic hip screw and 40% of patients operated with Ender’s nail. Implant breakdown in case of proximal femur nail, dynamic hip screw and Ender’s nail was 5%, 5% and none respectively.

15% of patients operated with Ender’s nail developed bed sores due to prolonged immobilization. Complication rates were much higher in case of Ender’s nail except that implant breakage was absent.

**Functional recovery was measured along various parameters as mentioned below:**

Mean days for full weight bearing in case of proximal femur nail was 33 days with a standard deviation of 7.08 days, was 40 days in case of dynamic hip screw with a standard deviation of 7 days and 72 days with a standard deviation of 8.5 days in case of Ender’s nail. Full weight bearing was seen early in case of proximal femur nail and was delayed in case of Ender’s nail [ANOVA TEST (F TEST) = 5.86 at degree of freedom 50 at 95% confidence limit which is highly significant].

At 6 weeks post operative follow up patients operated for intertrochanteric fractures using proximal femur nail 18.18% patients were walking with support and 81.81% were walking without support; when dynamic hip screw was used 8.3% patients were walking with support and 91.66% patients were walking without support; in case of Ender’s nail 50% patients were walking with support and the rest without support; in patients operated for sub-trochanteric fracture using proximal femur nail all patients were walking without support; when dynamic hip screw was used 75% patients were walking with support and 25% patients were walking without support; in case of Ender’s nail 62.8% patients were walking with support and 37.5% were walking without support. Overall patients operated using proximal femur nail were walking without support and patients operated with Ender’s nail were walking with support. Mean days for cross leg sitting in case of patients operated using proximal femur nail was 71 days with a standard deviation of 19.2 days, using dynamic hip screw was 100 days with a standard deviation of 13.1 days and using Ender’s nail it was 98 days with standard deviation of 12.9 days. So cross leg sitting, important in Indian population, was achieved earlier in patients operated using proximal femur nail group, were found to walk without support at 6 weeks follow up. Mean days required for full weight bearing and cross leg sitting were shorter in those operated with proximal femur nail and were longer in those operated with Ender’s nail.

**Radiologically following parameters were assessed:**

Out of the 35 patients having Inter-trochanteric fractures non-union was absent when proximal femur nail or Dynamic hip screw was used. Rate of non-union in Inter-trochanteric fractures when Ender’s nail was used was 8.33%. Out of 25 patients with sub-trochanteric fractures rate of non-union in patients operated using proximal femur nail was 11.11%, in case of dynamic hip screw was 12.5% and that in case of patients operated with Ender’s nail was 25%. More cases of non-union were seen in case of Ender’s nail than in other modalities. Varus alignment was in case of patients operated using proximal femur nail, dynamic hip screw and Ender’s nail was 5%, 25% and 30%; no valgus misalignment was observed in our case study.
REFERENCE