



TO EVALUATE FUNCTIONAL AND RADIOLOGICAL OUTCOME IN ELDERLY PATIENTS WITH FRACTURE INTERTROCHANTERIC FEMUR UNSTABLE TYPE TREATED WITH PFNA-II.

Orthopedics

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ABSTRACT

Aims and objectives- To evaluate functional and Radiological outcome in elderly patients with fracture intertrochanteric femur unstable type treated with PFNA-II.

Method and Materials- 30 patients were selected of age group 60yr and above. All patients were treated operatively with Proximal femoral nail anterotation type and its outcomes were assessed using Harris hip score and GAI and complications were observed with follow up to 12 months clinically and radiological imaging.

Result- Out of 30 patients of age group 60yrs to 90 yrs, 18 were male and 12 female with average age group 74 yrs. Majority of patients showed radiological union on an average 12.3 weeks, excellent to good result achieved in 80% patients assessed by HHS and GAI. Post operative complications were in 6 patients in which 2 had pull out of blade and 2 had medial penetration, no incidence of varus collapse and cut out.

Conclusion- patients treated with PFNA-II had good outcome as early weight bearing and less union time, very few case of medial penetration and cutout of implant. PFNA-II is very good implant for treating fracture i/t femur unstable type specially for osteoporotic patients.

KEYWORDS

Unstable Intertrochanteric fracture, Osteoporosis, Harris Hip Score, Garden alignment index, PFNA-II.

INTRODUCTION- Intertrochanteric fractures commonly occur in elderly patients with osteoporosis and its incidence will continue to rise due to the increasing life expectancy [1]. The main aim of surgery is early mobilisation of the patient. It is crucial to use an implant that is minimally invasive, allows early weight bearing, and has low complication rates. [2] The types of implant used in these fractures have been divided into extramedullary implants and intramedullary nails. The choice of implant is mainly determined by the fracture pattern (stable or unstable). Unstable intertrochanteric fractures are those with major disruption of the posteromedial cortex because of comminution or are fractures with reverse oblique patterns or fractures with subtrochanteric extension. Fractures without posteromedial cortex disruption or subtrochanteric extension are considered stable.

MATERIAL AND METHOD- 30 unstable intertrochanteric fractures treated with the PFNA II, were followed prospectively. AO classification was used to classify these fractures [3]. Fractures were classified as 31.A2 and as 31.A3 based on pre-operative radiograph. There were 18 men and 12 women with mean age of 74.4 years (range, 60 – 80 Year). In 27 patients fractures were caused by trivial fall and the rest were caused by road traffic accidents. **STUDY DESIGN :** Hospital based prospective interventional study. **STUDY DURATION:** 1 april 2016 to 30 september 2017 **STUDY PARTICIPANTS:** Patients (>60 yrs) with unstable Intertrochanteric fractures who met the inclusion criteria would be participants. **STUDY AREA:** Deptt. Of Orthopaedics RNT Medical College Udaipur.

INCLUSION CRITERIA

Closed unstable intertrochanteric fracture Age more than 60 years, Ability to walk independently (walking aids are allowed) prior to injury, Patient giving informed consent for the study

EXCLUSION CRITERIA

Patient with multiple injuries (polytrauma)
Open Fracture, Subtrochanteric fracture Intracapsular fracture neck of femur, Pathological fracture, Patients who were non ambulatory prior to their injury.

Implant Selection- The sizes of PFNA II nail. Commonly used nail diameter was 9, 10, 11 mm. Most commonly used nail length was 220 mm. Commonly used length of spiral blades were between 85-105 mm. Common PFNA angle 130° (Caput collum diaphyseal angle).

Surgical Technique- All surgeries were done over fracture table in supine position. Closed reduction of the fracture under fluoroscopic guidance was possible in 21 cases. Rest were reduced with minimal

opening of the fracture site using various reduction manoeuvres like strategically placed hohmann retractors and reduction clamps. 5cm Incision made 5-7cm above greater trochanter in line with femoral shaft. Mean operative time (skin to skin) was 27.6 min (range 18 - 90 minutes). All patients received prophylactic antibiotic (cefazolin) within 1 hour of skin incision. Cleveland zones and tip apex distance (TAD) was used to evaluate the placement of helical blade in the femoral head [6]. The fracture reduction was evaluated the first post-operative radiograph using the Garden Alignment Index (GAI) and fracture gap (mm) measurement. [7] The placement of helical blade was to be slightly inferior in AP and central in lateral views (Cleveland zone 5) in all patients.

Post operative care- Post operative antibiotics were given for 3 days. The active range of motion exercises and non weight bearing mobilisation was started on the first post-operative day as tolerated. The mean hospital stay was 6 days (range, 3 – 15). The mean follow up period was 12 months (12-15 months). All patients were evaluated clinically and radiologically at 3 weeks, 6 weeks, 12 weeks, 12 months. Mean time for full weight bearing was 8 weeks. Anteroposterior and lateral plain radiographs were obtained at each visit to look for the fracture union, tip apex distance [17, 18], cut-out or lateral migration of helical blade.

RESULTS- The present study was a prospective study of 30 patients with unstable intertrochanteric fracture. All the patients were treated with PFNA2. Patients were followed up for an average period of 12 months and the results were analyzed by using the Harris hip score system.

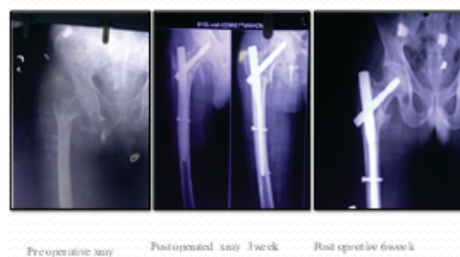
All patients in our study were above 60 years of age. Mean age was 74.40 yrs. The study consisted of 60% male and 40% female patients. Mean time for doing PFNA2 was 27.26 minutes. The mean amount of blood loss for was 41 ml. The mean time for protected weight bearing was 9.73 days and mean time for patients to walk without support in cases was 10 weeks. The union time for inter-trochanteric fractures 12.23 weeks. In our study, we found complication in six patients. One patient was found to have chest infection while in other patient we found urinary tract infection (UTI), two patients had spiral blade pull out and two patients had medial penetration of spiral blade. Superficial and Deep infection observed in none of the patients. There were 0.79 cm mean limb length shortening seen in final post operated follow up. The functional status according to Harris Hip score was excellent in 20%, good in 60%, fair in 6.66% and poor in 13.34% patients. Patients treated with PFNA II we find none of the patients had impingement of the nail to the lateral cortex and lateral wall fracture.

DISCUSSION-The incidence of unstable intertrochanteric fractures is increasing and this trend is likely to continue. These fractures are challenging for an average orthopaedic surgeon.

Treatment modalities include osteosynthesis with dynamic hip screws and cephalo- medullarynails and in selected cases,arthroplasty. However, the choice of implant for unstable intertrochanteric fractures is still debatable. PFNA II are now favoured in west and there are multiple studies coming from that region to support this. Very few studies exist on this subject from Indian population. In our study of unstable intertrochanteric fractures treated by PFNA II had rapid minimally invasive approach with minimal surgical trauma and provide stable fixation allowing early mobilization with full weightbearing. Our complication rate is comparable to previous studies [12].The change to implant was flattened lateral wall with decrease mediolateral nail angle prevent impingement to lateral cortex and fracture, helical blade was aimed to decrease the risk of cut out and medial penetration. However, the cut out of helical blade still remains to be the common cause of failure. There were no cases of cut outs in our study. The various studies have reported wide range of cut out rates varying from 2 - 25% [13-16]. Baumgaertner et al. [6] documented that the optimal placement of the lag screw was in the centre/centre position. The correct placement of the lag screw and helical blade at the centre of the femoral head and neck is important in both the antero-posterior and axial views. TAD is one of the most important predictive factors for the occurrence of a cut out . Geller et al. reported 44% of cut outs in intertrochanteric fractures fixation with TAD of > 25 mm and did not cut out with TAD of <25 mm [19].

CONCLUSION-Elderly patients treated with PFNA-2 had good outcome as early weight bearing and less union time, less operative time, minimal blood loss, very few case of medial penetration and backout of spiral blade. Patients had less post operative morbidity as its minimal invasive surgery. PFN-A is very good implant for treating unstable intertrochanteric fracture for osteoporotic patients.

Radiological evaluation



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Assesment of fracture gap and GAI

		numbers	%
Fracture gap	Good(0-3 mm)	26	86.66%
	Acceptable(3-5mm)	4	13.33%
	Poor(>5mm)	0	0%
GAI (garden alignment index)	Very good(160)	0	0%
	Good (180-160)	27	90%
	Acceptable(160-150)	3	10%
	Poor(<150)	0	0%

Functional assesment using harris hip score[8]

Harris hip score	number	%
EXCELLENT	6	20
GOOD	18	60
FAIR	2	6.66
POOR	4	13.33

FUNCTIONAL OUTCOME -

