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"Functional Outcome Of Fracture Of Intertrochanteric Femur In Older Patients With Proximal Femoral Nail (Pfn) A2 At Pravara Rural Hospital , Loni"

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INTRODUCTION

Intertrochanteric femoral fractures are of commonest over worldwide. They are the most frequently operated fracture type in old age. Though predominately associated with low-energy older age patients, high-energy trauma in young patients can result in similar patterns of fracture. A higher predisposition towards Intertrochanteric fracture is seen in females than males due to osteoporosis(1). Low-energy falls from a standing height stands accountable for approximately 90% of the hip fractures sustained in patients over the age of 50 years, with a higher incidence in females. High- energy hip fracture is relatively rare, and is more common in males under the age of 40 years. ***Proximal femur nail antirotaion - II aka PFNA-II is one of the most recent techniques used in orthopedics.*** PFNA-II, instead of having separate derotation and compression screws, has a single helical blade. The blade compacts the cancellous bone in femoral head when it is driven inside, which improves the femoral head strength and increases stability in cervico-cephalic direction^***15*** .

Oldly we use PFN , DHS , TFN for the intertrochanteric femur fracture but now a days PFNA2 used because of its unique properties ,High functional outcome , less surgical time & less complication rate as compared to previously used implants & techniques.

NEED OF THE STUDY.

Proximal femur nail antirotaion - II aka PFNA-II is one of the most recent techniques used in orthopedics. PFNA-II, instead of having separate derotation and compression screws, has a single helical blade. The blade compacts the cancellous bone in femoral head when it is driven inside, which improves the femoral head strength and increases stability in cervico-cephalic direction***15*** .

The purpose of this study is to assess the functional outcome of inter-trochanteric and sub-trochanteric fracture femur treated with Proximal Femur Nail Antirotation-II.

Aim-

To evaluate the role and result of PFNA-2 in the treatment of unstable intertrochanteric fractures in geriatric patients.

Objective -

1. To evaluate the functional outcome of PFNA 2 in treatment of intertrochanteric femur fracture in reference to fracture union, pain, mobility , postoperative infection, post operative morbidity

3.1Population and Sample

Type of study – descriptive longitudinal study

Place of study – This study will be carried out in Department of Orthopaedics at Pravara Rural hospital, located in rural area of central India for a period of two years.

Duration of study- 24 month (September 2022 to December 2024)

Study population- All patients of aged 70years and above diagnosed with intertrochanteric femur fractures.

3.2 Inclusion Criteria

1. Patients 70 years and above .
2. Patient with of intertrochanteric femur fractures along with co morbidities.

3.3 Exclusion Criteria

1. Patients who has neck femur / subtrochanteric femur
2. Patients who have avascular necrosis .
3. Patients who have been previously operated for femur fracture with nailing in same limb.

Sample size: 31

Sample Size for Frequency in a Population

Population size(for finite population correction factor or fpc)(*N*):	1000000
Hypothesized % frequency of outcome factor in the population (*p*):	2%+/-5
Confidence limits as % of 100(absolute +/- %)(*d*):	5%
Design effect (for cluster surveys-*DEFF*):	1

Sample Size(*n*) for Various Confidence Levels

ConfidenceLevel(%)	Sample Size
95%	31
80%	13
90%	22
97%	37
99%	53
99.9%	85
99.99%	119

Equation

Sample size $n = [DEFF*Np(1-p)]/ [(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$

Results from OpenEpi, Version 3, open source calculator--SSPropor
Print from the browser with ctrl-P
or select text to copy and paste to other programs.

3.4 Data and Sources of Data

A descriptive longitudinal study will be carried out at the department of orthopaedics of Rural Medical College,Loni

All patients who were in the age group from 70 years of age, patients with clinically and radiologically diagnosed intertrochanteric fractures as per Body and Griffin classification were included in the study and who will fulfil inclusion and exclusion criteria will be admitted and will undergo detailed examination initially with the history taking and clinical examination followed by X-rays in AP and lateral view. Therefore confirming the diagnosis with clinical evaluation.

In this study, patients of fracture of intertrochanteric femur were taken into study clinically assessed by patient having their fractured foot in external rotation, patient cant able to do staright leg raised test (SLRT) , pain on movement and not relieved on taking rest .

3.5 Theoretical framework

This Descriptive Longitudinal type of Study was conducted on 31 patients of intertrochanteric femur Fracture in old Age (>70 Years) at department of Orthopaedics at Dr. Balasaheb Vikhe Patil Rural Medical College, PMT-PIMS (DU), Loni Hospital for a period of 24 months.

- Thirty-one patients with intertrochanteric femur fractures were included in our study; these patients were categorised using the AO classification system.

- We evaluated the technical challenges associated with two bony entrance points: the greater trochanter's tip and a small distance (about 5 mm) medial to it.
- It becomes challenging to insert nails when the entry point is off, necessitating the use of an insertion jig.
- It was discovered that Proximal Femoral Nail Antirotation - II (PFNA-II) had a brief operating time. • The nail's flexible tip and lateral flattened cross-section facilitate insertion. The operative time is further decreased when proximal locking is accomplished with a single helical blade.
- Even in cases of severe osteoporosis, the helical design of the proximal locking blade is suitable for guaranteeing a firm purchase in the femur head and neck.
- In the majority of patients, the Harris Hip score indicated an excellent to good functional result.
- When used in osteoporotic patients, this implant creates a stable structure and lowers the On the third post-operative day, the majority of the patients in our study were mobilised by beginning toe-touch weight bearing.
- Because of severe fracture comminution, less than 25% of the patients started delayed weight bearing at 6 weeks after surgery.
- Early mobilisation prevented complications associated with recumbency and allowed patients to return as soon as possible to their pre-frail status.

To treat stable and unstable intertrochanteric fractures, particularly those in the elderly and those linked to osteoporotic bone, PFN A-II is, in short, a stable, biomechanically appropriate implant with a specialised design that offers clear advantages over alternative implants.

3.6 Variables

Age distribution
Gender distribution
SIDE
MODE OF INJURY
PFNA-2 size
Associated injuries
OPERATING TIME
HARRIS HIP SCORE
Radiological union

IV. RESULTS AND DISCUSSION

4.1 Results of DESCRIPTIVE Statistics of Study Variables

S.NO	AGE	SEX	SIDE	MODE OF INJURY	TYPE OF FRACTURE (AO)	PFN	SURGICAL ENTRY SITE	ASSOCIATED INJURIES	OPERATING TIME (MINUTES)	MOBILISATION AT (POD)	HHSAT 1 MONTH	HHSAT 3 MONTHS	TIME FOR RADIOLOGICAL UNION (WEEKS)	COMPLICATIONS
1	86	F	RIGHT	FALL	31A1.2	32MM	MEDIAL TO TIP OF GT	RIGHT OLECRANON FRACTURE	85	3RD DAY	76	93	14	NONE
2	79	F	LEFT	FALL	31A3.1	32MM	MEDIAL TO TIP OF GT	NONE	75	3RD DAY	79	88	14	NONE
3	86	M	RIGHT	RTA	31A1.2	34MM	MEDIAL TO TIP OF GT	NONE	60	3RD DAY	82	86	14	NONE
4	83	M	RIGHT	FALL	31A1.3	36MM	TIP OF GT	NONE	85	3RD DAY	80	84	18	NONE
5	82	M	RIGHT	FALL	31A2.3	36MM	MEDIAL TO TIP OF GT	NONE	80	3RD DAY	76	82	18	ABDUCTOR LURCH
6	84	M	LEFT	FALL	31A2.2	32MM	TIP OF GT	NONE	90	3RD DAY	76	85	14	NONE
7	84	F	LEFT	FALL	31A1.2	34MM	TIP OF GT	NONE	40	3RD DAY	80	88	14	NONE
8	88	F	LEFT	FA	31A2.3	34	TIP OF GT	NONE	85	3RD DAY	75	86	22	HELICAL SCREW

				LL		MM								BACKOUT
9	81	F	LEFT	FALL	31A1.2	30MM	TIP OF GT	NONE	75	6 WEEKS	78	89	14	NONE
10	88	F	RIGHT	FALL	31A1.3	30MM	TIP OF GT	NONE	90	3rD DAY	80	86	14	HIP PAIN
11	79	F	LEFT	FALL	31A2.3	32MM	TIP OF GT	NONE	95	6 WEEKS	76	81	22	NONE
12	85	M	LEFT	RTA	31A1.2	34MM	TIP OF GT	RIGHT 1ST METACARPAL FRACTURE	80	3RD DAY	85	91	14	NONE
13	89	M	LEFT	FALL	31A1.2	36MM	TIP OF GT	NONE	65	3RD DAY	79	87	10	BED SORE
14	89	M	LEFT	FALL	31A2.2	32MM	TIP OF GT	NONE	75	3RD DAY	75	86	22	HELICAL SCREW BACKOUT
15	86	M	RIGHT	FALL	31A2.2	34MM	TIP OF GT	NONE	90	3RD DAY	79	86	14	NONE
16	77	F	RIGHT	FALL	31A1.3	32MM	TIP OF GT	NONE	80	3RD DAY	80	89	14	NONE
17	87	F	LEFT	FALL	31A1.2	32MM	MEDIAL TO TIP OF GT	NONE	65	3RD DAY	78	84	14	NONE
18	85	F	LEFT	RTA	31A1.3	34MM	TIP OF GT	NONE	90	3RD DAY	79	87	10	NONE
19	72	M	LEFT	FALL	31A2.3	34MM	TIP OF GT	NONE	95	6 WEEKS	78	84	18	NONE
20	72	M	LEFT	FALL	31A1.2	34MM	TIP OF GT	NONE	85	3RD DAY	84	91	10	NONE

21	83	M	RIGHT	FALL	31A1.1	32MM	TIP OF GT	NONE	45	3RD DAY	84	90	10	NONE
22	77	M	LEFT	RTA	31A1.2	32MM	TIP OF GT	NONE	65	3RD DAY	80	86	14	NONE
23	74	M	LEFT	FALL	31A1.2	34MM	MEDIAL TO TIP OF GT	NONE	75	3RD DAY	82	88	10	NONE
24	82	F	LEFT	FALL	31A2.2	32MM	MEDIAL TO TIP OF GT	NONE	70	3RD DAY	77	82	14	BED SORE
25	83	F	LEFT	FALL	31A1.2	32MM	MEDIAL TO TIP OF GT	NONE	80	3RD DAY	80	84	14	NONE
26	82	M	RIGHT	FALL	31A1.2	30MM	MEDIAL TO TIP OF GT	NONE	75	3RD DAY	79	92	10	NONE
27	88	M	LEFT	FALL	31A1.2	32MM	MEDIAL TO TIP OF GT	NONE	80	3RD DAY	83	89	14	NONE
28	84	M	RIGHT	FALL	31A1.3	32MM	MEDIAL TO TIP OF GT	NONE	70	3RD DAY	79	84	10	NONE
29	90	M	LEFT	RTA	31A3.2	34MM	MEDIAL TO TIP OF GT	RIGHT SUPRACONDYLAR FEMUR FRACTURE	80	6 WEEKS	80	86	14	SUPERFICIAL INFECTION
30	78	M	LEFT	FA	31A1.2	32	MEDIAL TO	NONE	75	3RD DAY	77	84	10	NONE

				L L		M M	TIP OF GT							
31	77	F	RIGHT	FALL	31A1.3	32MM	TIP OF GT	NONE	80	3RD DAY	80	89	14	NONE

- The benefits of PFN A-II are noteworthy, and the minimal rate of complications can be achieved with the right surgical method.

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