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A Randomized Comparative Study On Functional Outcome Of Pertrochanteric Femoral Fractures Treated With A Dynamic Hip Screw Or A Proximal Femoral Nail

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Abstract:
Background And Objective: *Proximal femoral fractures are one of the commonest fracture in geriatric population and their incidence is predicted to grow rapidly with increase in aging population. To compare the functional Outcome of Intertrochanteric Fractures of Femur treated with Dynamic Hip Screw verses Proximal Femoral Nail in terms of*

1. *Operative time.*
2. *Fracture union*
3. *Complications*
4. *Harris hip score at one year*

Methods: *The cases for this study have been taken from the patients attending the Out Patient Department and those arriving at the Emergency Department of Yenepoya Medical College & Hospital, Deralakatte ,Mangalore between August 20014 to January 2016*
Results: *The most common age group in our series was between 51-70 years with a mean age of 56.45 years. Both hips were equally involved and M:F ratio of the patients was1:1 . In general postoperative complication rate in PFN group was more than DHS. The most common complication was screw cutout and varus deformity in PFN group. DHS group had less operative time and less complications. Patients treated with either DHS or PFN had similar pain score at sixth month and one year of follow up.All the patients of both the groups started walking without support in 16-24wks. Patients treated with either DHS or PFN had similar outcome in terms of limb length shortening.The functional outcomes in terms of Harris hip score at the end of one year were similar in D.H.S. and P.F.N. group.*
Conclusion: *We conclude in our study that in stable as well as in unstable peritrochanteric femoral fractures final result in terms of functional outcome are similar after one year and the choice of implant in these kind of fractures should be according to the surgeons experience and preference.*
Keywords: *intertrochanteric fracture, dynamic hip screw, proximal femur nail*

I. Introduction

Proximal femoral fractures are one of the commonest fracture in geriatric population and their incidence is predicted to grow rapidly with increase in aging population. Some of the facts are as follows:

- Nine of ten hip fractures occur in patient older than 65 years of age.
- About three out of four are women; about half of these fractures are intertrochanteric fractures.

In USA Inter-trochanteric fracture incidence is 63/ lac in elderly women. Vast majority of these fracture occur after a simple fall and hospitalized patient have an eleven fold increased frequency compared with aged matched controls.[3-5]

The gold standard of care today is operative reduction and internal fixation and early rehabilitation.
Short term operative goals are to provide:

- Stable construct enough to withstand early mobilization
- Mobilization in early post-op period
- Minimise complications associated with long term recumbency
- Long term goals are to restore previous level of independence and function

The greatest problems for the surgeon providing this treatment are fracture instability and the complications of fixation that result from instability. In trochanteric fractures, stability refers to the capacity of the internally fixed fracture to resist muscle and gravitational forces around the hip that tend to force the fracture into a varus position. Intrinsic factors like osteoporosis and comminution of the fracture and extrinsic factors like choice of reduction, choice of implant and technique of insertion, contribute to failure of internal fixation.

The type of implant used has an important influence on complications of fixation. Kaufer Matthhews and Stonstesgard[50] listed the following variables as those that determine fracture fragment-implant assembly (1) bone quality (2) fracture geometry (3) reduction (4)implant design and (5)implant placement.Of these five

elements of stable fixation the surgeon can control only the quality of the reduction and the choice of implant and its placement. Compression hip screw provides compression in intertrochanteric plane and compression plate provides additional compression axially. If the lesser trochanter is displaced with a large fragment a significant cortical defect is present posteromedially and the fracture geometry indicates a potentially unstable reduction .if the defect is seen on preoperative radiographs, the decision may be made to change internal fixation devices from a plate to an intramedullary device. [51]

Intramedullary devices like the proximal femoral nail have been reported to have an advantage in such fractures as their placement allowed the implant to lie closer to the mechanical axis of the extremity, thereby decrease the lever arm and bending moment on the implant. They can also be inserted faster, with less operative blood loss and allow early weight bearing with less resultant shortening on long term follow up.

Proximal Femoral Nail or Dynamic Hip Screw, the ideal implant!! The discussion regarding which one of these is ideal for proximal femoral fracture is continuing and controversial.

II. Methods

The cases for this study have been taken from the patients attending the Out Patient Department and those arriving at the Emergency Department of Yenepoya Medical College & Hopsital, Deralakatte ,Mangalore between August 20014 to January 2016.

Inclusion & Exclusion Criteria

Patients with Intertrochanteric Fractures were selected for the study regardless of age **except** for

1. Those who did not walk before the fracture.
2. Open fractures
3. Very poor anaesthetic and general risk factors and therefore surgery could not be done.
4. Those unable to co-operate in post-op period as seen in :

- Dementia
- Psychosis
- Mental retardation
- Parkinsonism
- CVA
- Residual hemiplegia and spasticity

A total of 120 patients were operated (60 patient for Dynamic Hip Screw & 60 for Proximal Femoral Nail).

Patients were selected alternatively for DHS & PFN regardless of the fracture type.

Pre Operative Assessment

All the patients were carefully evaluated preoperatively which included detailed history to determine the cause of fracture and other diseases. The radiograph of pelvis with both hips and lateral view of the affected hip was taken. The fracture was classified using Orthopaedic Trauma Association (OTA) classification. Skin traction was applied to all cases.

Intra-Operative Assessment

1. Type of Anesthesia -- General / Spinal / Epidural
2. Reduction at fracture table – Closed / Open
   -- Stable / Unstable
3. Fracture comminution – Posteromedial / Lateral / Subtrochanteric
4. Additional Procedure – Primary bone grafting / Trohanteric Butteress Plate
5. Operative Time (in minutes)

Post Operative Assessment

1. Post-op implant position of Hip Screw (both AP & lat view)

2. Follow – Up at

10days-2wks(for stitch removal)
6 Weeks (1st visit)
3 months (2nd visit)
6 months (3rd visit)
12 months (4th visit)

3. Assessment done regarding one of these parameter on respective visits-

(A) Four post walker partial weight bearing (Toe touch walking)

(B) Four post walker full weight bearing
(C) Ambulation with stick in opposite hand
(D) Time to union and walking without support
(E) Shortening
4. Degree of Pain versus Time passed after Surgery
5. At the end of 12 months results assessed by Modified Harris Hip score
6. Complications
7. Revision Surgery.

III. Results

Pre-Operative Variables

Table 1: Age distribution of patients studied

Age in years	D.H.S.		P.F.N.	
	No	%	No	%
35-40	6	10.0	9	15.0
41-50	15	25.0	9	15.0
51-60	18	30.0	21	35.0
61-70	18	30.0	12	20.0
71-80	3	5.0	9	15.0
Total	60	100.0	60	100.0
Mean ± SD	56.45±10.61		56.85±11.72	

Samples are age matched with P=0.910

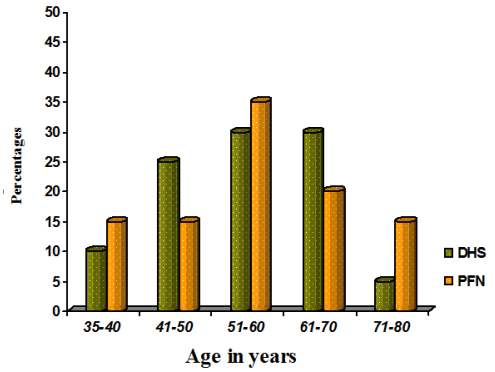
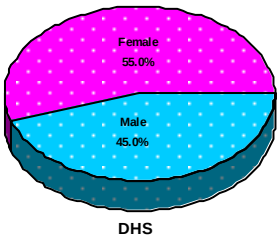


Table 2: Gender distribution of patients studied

Gender	D.H.S.		P.F.N.	
	No	%	No	%
Male	27	45.0	36	60.0
Female	33	55.0	24	40.0
Total	60	100.0	60	100.0

Samples are gender matched with P=0.342



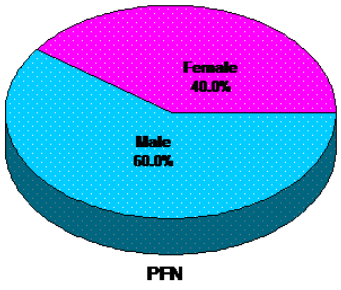


Table 3: Mode of injury distribution of patients studied

Mode of injury	**DHS**		**PFN**	
	No	**%**	**No**	**%**
Fall from height	6	10.0	3	5.0
RTA	6	10.0	6	10.0
Trivial trauma	48	80.0	51	85.0
Total	60	100.0	60	100.0

Mode of Injury is statistically similar in two groups of patients with P=1.000

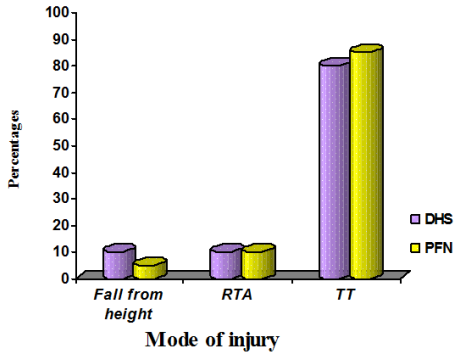


Table 4: Fracture type distribution of patients studied

Fracture type	**D.H.S.**		**P.F.N.**	
	No	**%**	**No**	**%**
A1.1	3	5.0	3	5.0
A1.2	6	10.0	3	5.0
A1.3	6	10.0	6	10.0
A2.1	3	5.0	3	5.0
A2.2	6	10.0	9	15.0
A2.3	9	15.0	6	10.0
A3.1	9	15.0	6	10.0
A3.2	12	20.0	15	25.0
A3.3	6	10.0	9	15.0
Total	60	100.0	60	100.0

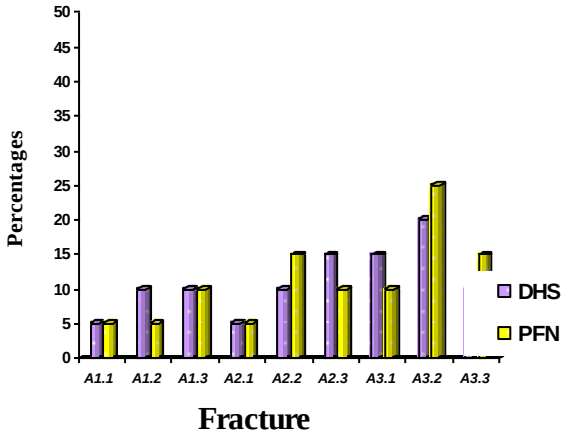


Table 4: Side of patients studied

Side	**D.H.S.**		**P.F.N.**	
	No	**%**	**No**	**%**
Left	27	45.0	36	60.0
Right	33	55.0	24	40.0
Total	60	100.0	60	100.0

Distribution of side is statistically similar in two groups with P=0.342

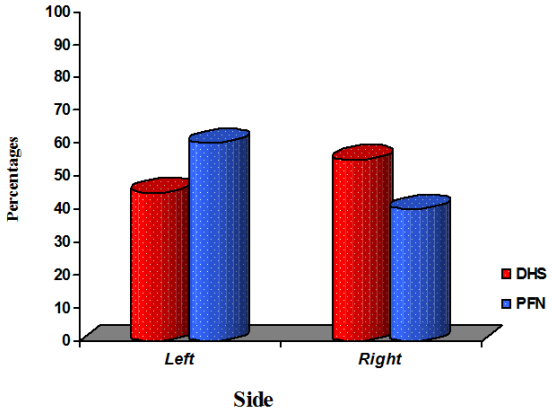


Table 5: Pre op level of ambulation

Pre op level of ambulation	D.H.S.		P.F.N.	
	No	%	No	%
In home ambulation	3	5.0	0	0.0
Limited walking without support	15	25.0	9	15.0
Limited walking with support	3	5.0	6	10.0
Unlimited walking	39	65.0	45	75.0
Total	60	100.0	60	100.0

Pre-op level of ambulation is statistically similar in two groups with P=0.666

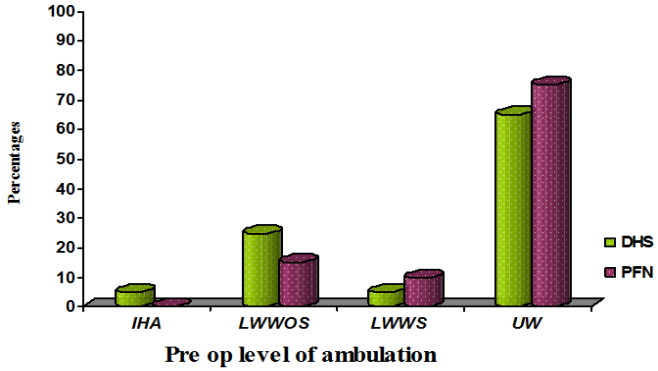


Table 6: Associated disease

Associated Disease	D.H.S. (n=60)		P.F.N. (n=60)	
	No	%	No	%
DM	30	50.0	21	35.0
HTN	36	60.0	39	65.0
CAD	12	20.0	6	10.0
RA	6	10.0	3	5.0
Spondyloarthropathy(SS)	3	5.0	6	10.0
Allergy	9	15.0	9	15.0
COPD	9	15.0	3	5.0
Others	9	15.0	12	20.0

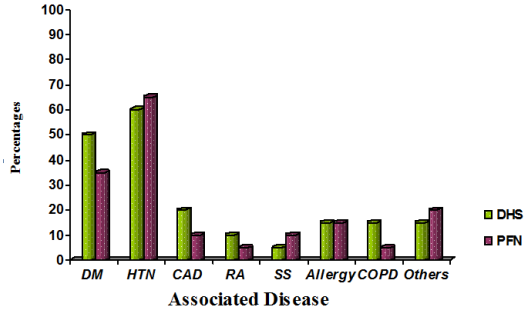
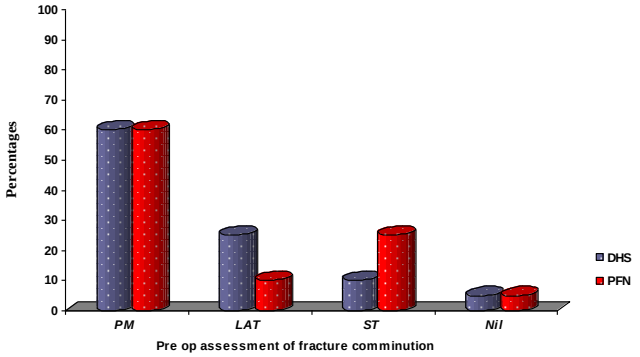


Table 7: Pre op assessment of fracture comminution

Pre op assessment of fracture comminution	**D.H.S. (n=60)**		**P.F.N. (n=60)**	
	No	**%**	**No**	**%**
Posteromedial(PM)	36	60.0	36	60.0
Lateral(LAT)	15	25.0	6	10.0
Subtrochanteric(ST)	6	10.0	15	25.0
Nil	3	5.0	3	5.0

Pre-op assessment of fracture comminution is statistically similar in two groups with P=0.453



Intra Op Variables

Table 8: Comparison of reduction in two group studied

Reduction	**D.H.S. (n=60)**		**P.F.N. (n=60)**	
	No	**%**	**No**	**%**
Closed reduction	54	90.0	51	85.0
Open reduction	6	10.0	9	15.0

Reduction distribution is statistically similar in two groups with P=1.000

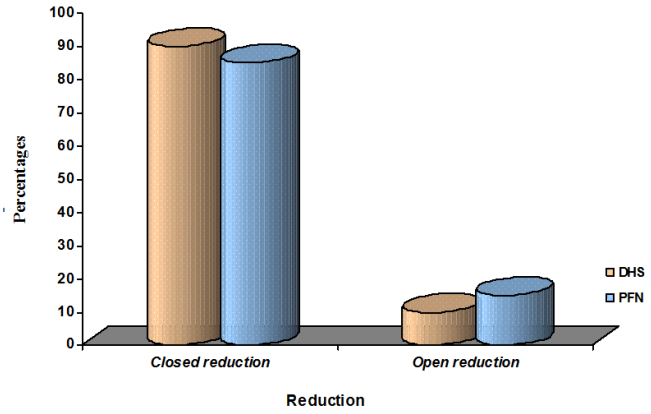


Table 10: Comparison of Type of reduction in two group studied

Type of Reduction	**D.H.S. (n=60)**		**P.F.N. (n=60)**	
	No	**%**	**No**	**%**
Unstable	42	70.0	39	65.0
Stable	18	30.0	21	35.0

Distribution of type of reduction is statistically similar in two groups with P=0.735

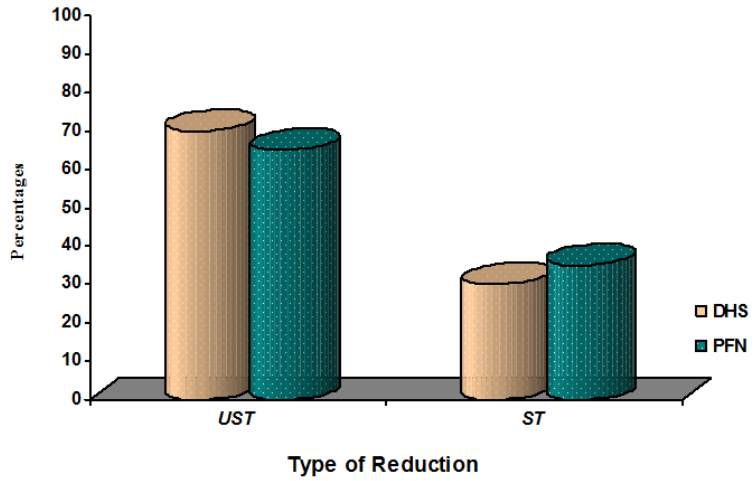
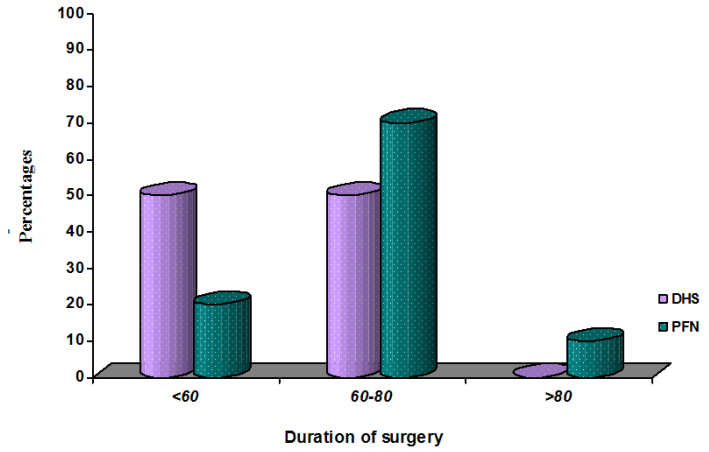


Table 11: Comparison of Duration of surgery in two group studied

Duration of surgery(min.)	**D.H.S. (n=60)**		**P.F.N. (n=60)**	
	No	**%**	**No**	**%**
<60	30	50.0	12	20.0
60-80	30	50.0	42	70.0
>80	0	0.0	6	10.0
Inference	Duration of surgery is statistically significantly more in PFN Group (>60 minutes: 80.0% vs 50.0% in DHS Group) with P=0.058+			



Post-Op Variables

Table 12: Comparison of Post-op Implant position in two group studied

Post-op Implant position	**D.H.S. (n=60)**		**P.F.N. (n=60)**	
	No	**%**	**No**	**%**
Anterosuperior(AS)	6	10.0	18	30.0
Central(C)	39	65.0	24	40.0
Posteroinferior(PI)	15	25.0	18	30.0
Inference	Distribution of Post-op Implant position is statistically similar with P=0.202			

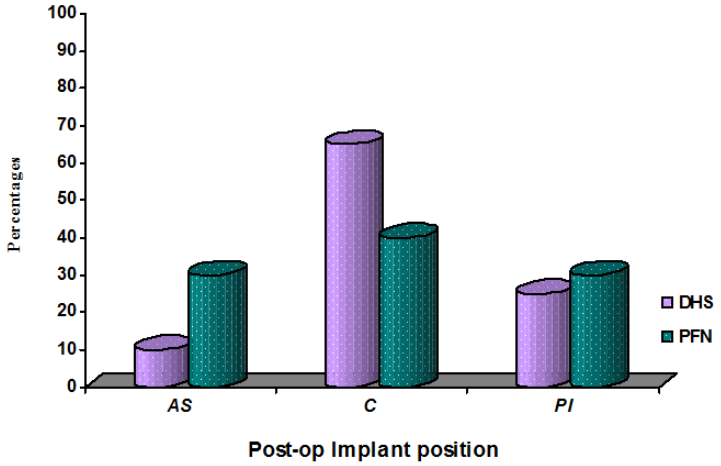


Table 13: Follow up status

	Follow up				
	2 weeks	**6 weeks**	**3 months**	**6 months**	**12 months**
D.H.S.					
• Follow up	60(100.0%)	60(100.0%)	60(100.0%)	60(100.0%)	60(100.0%)
• No follow up	0	0	0	0	0
P.F.N.					
• Follow up	60(100.0%)	60(100.0%)	60(100.0%)	60(100.0%)	60(100.0%)
• No follow up	0	0	0	0	0

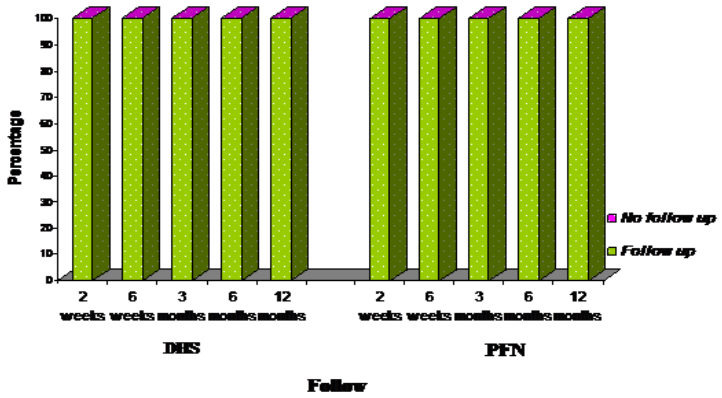


Table 14: Toe touch walking : With walker

	Toe touch walking : With walker			
	1-3 days (n=60)	**4-7 days (n=60)**	**8-12 days (n=60)**	**% change**
D.H.S.				
Not achieved	9(15.0%)	3(5.0%)	0	-15.0%
Achieved	51(85.0%)	57(95.0%)	60(100.0%)	+15.0%
P.F.N.				
Not achieved	12(20.0%)	6(10.0%)	0	-20.0%
Achieved	48(80.0%)	54(90.0%)	60(100.0%)	+20.0%
• P value	1.000	1.000	1.000	-

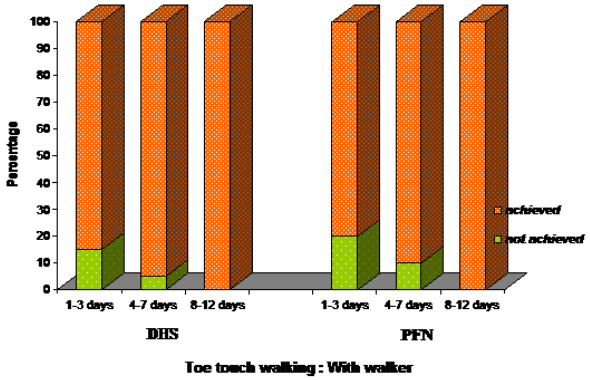


Table 15: Full weight bearing: With walker

	Full weight bearing: With walker				
	3 weeks	**6 weeks**	**9 weeks**	**12 weeks**	**% change**
D.H.S.					
• Not achieved	51(85.0%)	24(40.0%)	3(5.0%)	0	-85.0%
• Achieved	9(15.0%)	36(60.0%)	57(95.0%)	60(100.0%)	+85..%
P.F.N.					
• Not achieved	54(90.0%)	30(50.0%)	12(20.0%)	0	-90.0%
• Achieved	6(10.0%)	30(50.0%)	48(80.0%)	60(100.0%)	+90.0%
P value	**0.633**	**0.525**	**0.342**	**1.000**	**-**

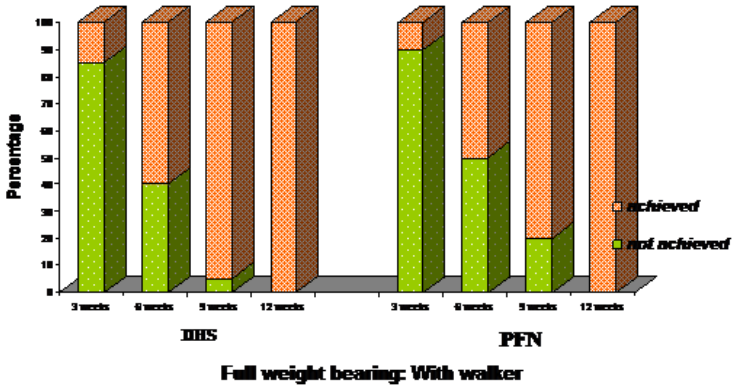


Table 16: Full weight bearing: With stick in opposite hand

	Full weight bearing: With stick in opposite hand				
	<6 weeks	**6 -8 weeks**	**8-12 weeks**	**>12 weeks**	**% change**
D.H.S.					
• Not achieved	48(80.0%)	24(40.0%)	3(5.0%)	0	-80.0%
• Achieved	12(20.0%)	36(60.0%)	57(95.0%)	60(100.0%)	-80.0%
P.F.N.					
• Not achieved	51(85.0%)	30(50.0%)	12(20.0%)	0	-85.0%
• Achieved	9(15.0%)	30(50.0%)	48(80.0%)	60(100.)%)	+85.0%
P value	**1.000**	**0.744**	**0.736**	**0.342**	**-**

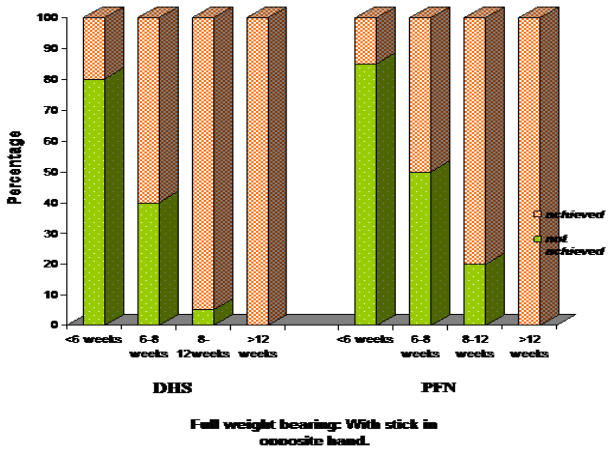


Table 17: **Time to union and walking without support**

	Time to union and walking without support				
	<12 weeks	**12-16 weeks**	**16-24 weeks**	**>24 weeks**	**% change**
D.H.S.					
• Absent	30(50.0%)	12(20.0%)	0	0	-50.0%
• Present	30(50.0%)	48(80.0%)	60(100.0%)	60(100.0%)	+50.0%
P.F.N.					
• Absent	39(65.0%)	21(35.0%)	0	0	-65.0%
• Present	21(35.0%)	39(65.0%)	60(100.0%)	60(100.0%)	+65.0%
P value	**0.337**	**0.480**	**1.000**	**1.000**	**-**

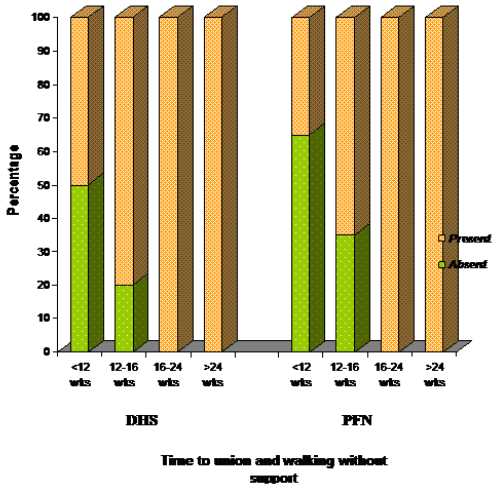


Table 18: Degree of pain verses time passed after surgery

	Degree of pain verses time passed after surgery				
	6 weeks (n=60)	**3 months (n=60)**	**6 months (n=60)**	**1 years (n=60)**	**% change**
D.H.S.					
• No pain(NP)	18(30.0%)	30(50.0%)	39(65.0%)	51(85.0%)	+55.0%
• Continuous pain(CP)	6(10.0%)	6(10.0%)	6(10.0%)	6(10.0%)	0.0
• Pain on wt. bearing(PWB)	36(60.0%)	24(40.0%)	15(25.0%)	3(5.0%)	-55.0%
P.F.N.					
• No pain(NP)	15(25.0%)	36(60.0%)	39(65.0%)	48(80.0%)	+55.0%
• Continuous pain(CP)	6(10.0%	6(10.0%)	6(10.0%)	6(10.0%)	0.0%
• Pain on wt. bearing(PWB)	39(65.0%)	18(30.0%)	15(25.0%)	6(10.0%)	-55.0%
P value	**1.000**	**0.067+**	**1.000**	**1.000**	**-**

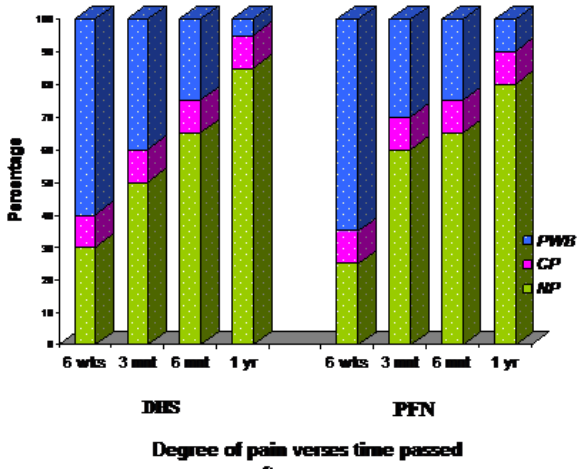


Table 19: Comparison of Shortening in two group studied

Shortening	**D.H.S. (n=60)**		**P.F.N. (n=60)**	
	No	**%**	**No**	**%**
Nil	12	20.0	9	15.0
<1.5	30	50.0	36	60.0
>1.5	18	30.0	15	25.0

Distribution of shortening is statistically similar with P=0.834

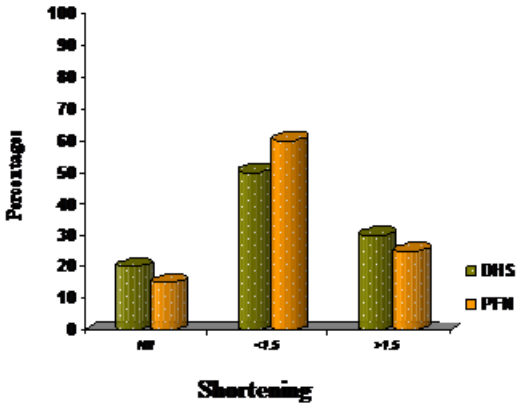


Table 20 Comparison of Modified Harris Hip Score at 1 year in two group studied

HHS	**D.H.S. (n=60)**		**P.F.N. (n=60)**	
	No	**%**	**No**	**%**
Excellent	30	50.0	15	25.0
Good	15	25.0	24	40.0
Fair	9	15.0	15	25.0
Poor	6	10.0	6	10.0
Inference	Distribution of HHS at 1 years is statistically similar in two groups with P=0.434			

Harris hip score as outcome is statistically similar in two groups of patients studied

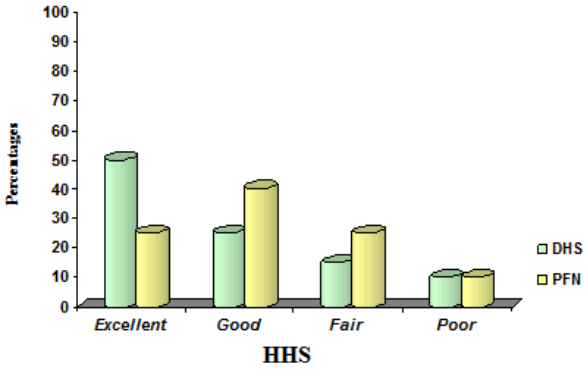


Table 21 Comparison of Modified Harris Hip Score at 1 years in two group studied in D.H.S. Group

HHS	**Stable (n=18)**		**Unstable (n=42)**	
	No	**%**	**No**	**%**
Excellent	12	66.7	18	42.9
Good	3	16.7	12	28.6
Fair	3	16.7	6	14.3
Poor	0	0.0	6	14.3
Inference	Distribution of HHS at 1 years is statistically similar in stable and Unstable fractures with P=0.814			

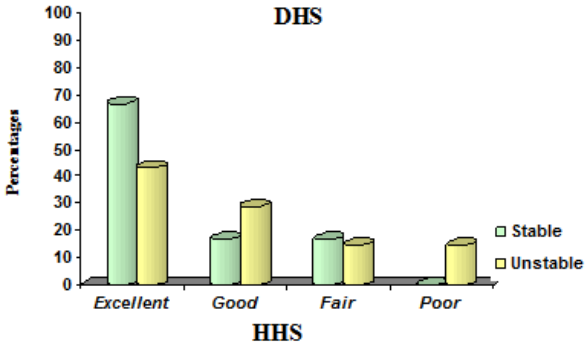


Table 22 Comparison of Modified Harris Hip Score at 1 years in two group studied in P.F.N.Group

HHS	**Stable (n=21)**		**Unstable (n=39)**	
	No	**%**	**No**	**%**
Excellent	6	28.6	9	23.1
Good	9	42.9	15	38.5
Fair	6	28.6	9	23.1
Poor	0	0.0	6	15.4
Inference	Distribution of HHS at 1 years is statistically similar Stable and unstable fractures in group B with P=1.000			

Table 23 Comparison of Modified Harris Hip Score at 1 years in two group studied for Stable fractures

HHS	**D.H.S. (n=18)**		**P.F.N. (n=21)**	
	No	**%**	**No**	**%**
Excellent	12	66.7	6	28.6
Good	3	16.7	9	42.9
Fair	3	16.7	6	28.6
Poor	0	0.0	0	0.0
Inference	Distribution of HHS at 1 years is statistically similar in two groups for stable fractures with P=0.493			

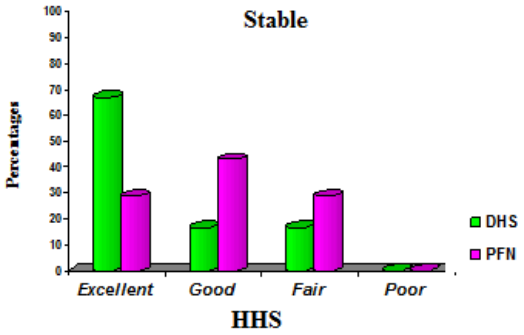


Table 24 Comparison of Modified Harris Hip Score at 1 years in two group studied for Unstable fractures

HHS	**D.H.S. (n=42)**		**P.F.N. (n=39)**	
	No	**%**	**No**	**%**
Excellent	18	42.9	9	23.1
Good	12	28.6	15	38.5
Fair	6	14.3	9	23.1
Poor	6	14.3	6	15.4
Inference	Distribution of HHS at 1 years is statistically similar in two groups for unstable fractures with P=0.854			

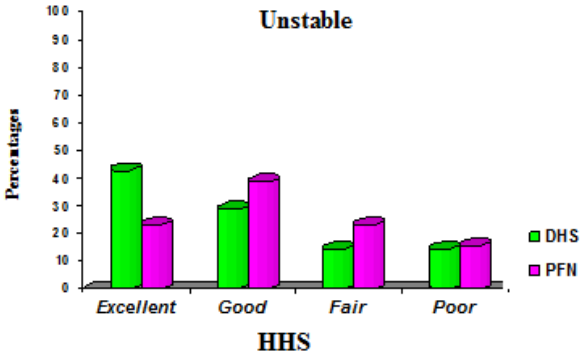
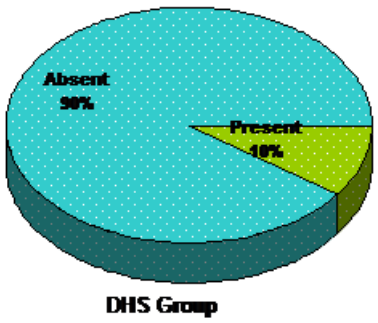
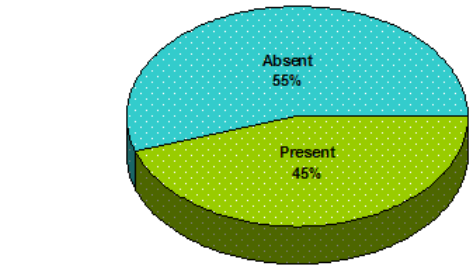


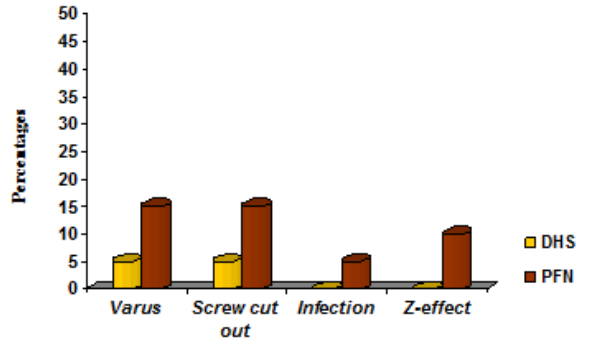
Table 25: Comparison of Complications in two group studied

Complications	**D.H.S. (n=60)**		**P.F.N. (n=60)**	
	No	**%**	**No**	**%**
Absent	54	90.0	33	55.0
Present	6	10.0	27	45.0
• Varus deformity	3	5.0	9	15.0
• Screw cut out	3	5.0	9	15.0
• Infection	0	0.0	3	5.0
• Z-effect	0	0.0	6	10.0
Inference	Presence of complications are significantly more in PFN Group (45.0%) compared to DHS Group (10.0%) with P=0.031*			





PFN Group



Complication

IV. Discussion

Peritrochanteric fracture of femur have always been recognized as a major challenge by the orthopaedics community not only for achieving fracture union, but also for restoration of optimal function in the shortest possible time and with minimal complications. Despite the advance in surgical skill and implant devices, treatment of comminuted unstable trochanteric fracture is a challenge for the treating surgeon either due to fracture geometry or unavailability of suitable implant to over come the stress incurred by stressing forces.

Operative treatment by internal fixation offers the best chance of functional recovery. It has therefore become the treatment of choice as advocated by Boyd & Anderson (1961) Koral & Zuckermann[33] (1994) and Weise & Schivals (2001).[34]The goal of this study was to compare the functional outcomes of patients with intertrochanteric fractures treated by two different fixation devices, the extramedullary dynamic hip screw and the intramedullary proximal femoral nail. Our study consisted of 120 patients with intertrochanteric fractures out of which 60 were treated with DHS and 60 with PFN.

Age Group In the present study almost 50% patient of each group were between age group 51-70 years. Both the groups are age matched with p value=0.910. Gallaghar et al[45] (1980) have reported eight fold increase in trochanteric fracture in men over 80 and women over 70 years.

Male: Female ratio in this study was 1:1. Melton et al[44] released a study titled "Fifty years trend in hip fracture incidence" and reported M: F:: 1:1.8, the difference is probably because our study measured the M:F ratio amongst operated fractures only and not for the actual sex incidence for all trochanteric fractures All the fractures that occurred in patients younger than 51 years were either due to a fall from height or a road traffic accident. This supports the view that bone stock plays an important role in the causation of fractures in the

elderly, which occur after a trivial fall. No attempt was made to measure the degree of osteoporosis by the Singh index, as it involves a great inter-observer variability and depends on good quality x-rays. In addition, the accuracy of the Singh index has been questioned by authors such as Koot et al.[36].

The most common **mode of injury** emerged as the simple fall on ground in elderly individual 80% cases in DHS group and 70% cases in PFN group. Cummings and Nevilt [35](1994) found similar incidence. Road traffic accidents and fall from height both accounted for remaining 20% cases in DHS & 30% cases in PFN group and mainly in younger population. Koval & Zuckermann [37](1998) also observed young patients sustained trochanteric fractures by high energy trauma in 90% of cases.

However in our study mode of Injury is statistically similar in two groups of patients with P=1.000

Type of fracture In our study, A3 was the most common type of fracture in 50% of patients in both the groups followed by A2 (30%). A3 and A2 is more common in >40 years age group, it shows higher rate of comminution in osteoporotic bone of elderly people.

The **pre-injury walking ability** was similar in both groups of patients treated with DHS or PFN (p=0.666). 90 % of patients in each group were walking without support prior to the injury.

The **comorbid conditions** in both group were similar DM/HTN/CAD being most common.

Pre operatively all the fractures were **evaluated for comminution** and posteromedial was found most common in both groups. statistically both the groups had similar distribution in this respect with p=0.453.

In DHS group close reduction was achieved in 90% cases while in PFN group 85% close reduction achieved.(p=1.000).

Based on evan's classification fracture reduction was accessed for stable and unstable type and Distribution of type of reduction is also found statistically similar in two groups with P=0.735.

Operative Time Duration of surgery is more in PFN group which is suggesting a statistical significance(P=0.058+). Adams et al[38] & Hardy et al[55] also found significant higher operative time in second generation intra medullary nail as compare to dynamic hip screw.

Koval & Zuckermann [37](1994) in a metaanalysis found same results. Saudan and colleagues[40] found that there was no significant difference between the operative times in the two groups in their series .while Baumgaertner et al.[14] found that the surgical times were 10 per cent higher in the DHS group in their series.

A central position of screw is probably optimal for pertrochanteric fractures (Mushollard and Gunn 1972, Wolfgang et al. 1982, Davis et al., 1990). Postoperative **implant position** in femoral head has been evaluated in both group and central position was found in 65% of DHS group and 40% in PFN group, posteroinferior in 25%in DHS group and 30% in PFN group ,antersuperior in 10% of DHS group and 30%in PFN group and statistically they are similar with p=0.202.

Post Operative Results Toe touch weight bearing in both the groups were similar in initial two post operative weeks with p=1.000

However, PFN is a load sharing implant but we were not able to achieve partial weight bearing within third post-op day in 20% cases because of inability to reconstruct severe posteromedial comminution in these patients.

Full weight bearing was allowed within 6 week with help of walker in 60% cases of DHS and 50% cases of PFN group(p=0.525).At the end of 12^{th} week 100% of both the group were found bearing full weight with the help of walker(p=1.000).

All Patients were ambulant with the help of stick in opposite hand within 12 weeks in both the groups(p=0.342). There was no significant statistical difference found between both groups while walking without support at 12^{th},16^{th} and 24^{th} weeks(p value 0.337,0.480and1.000 respectively).

Saudan et al [53] in a controlled study suggested that use of dynamic hip screw may allow more patients to return to their previous level of activity while in contrast Pejarinen et al [54] in their study found that use of proximal femoral nail may allow a better postoperative restoration of walking ability when compared with dynamic hip screw.

Follow up- 100% follow-up of DHS and PFN group was within first 6 months. At the end of 1 year also 100% follow up in DHS and PFN group was maintained

Functional outcome in terms of harris hip score

Evaluation of Harris hip score at one year in patients treated with DHS (stable or unstable fracture)was found similar (p=0.814) and similar results were noticed in PFN group(stable or unstable fractures) with p=1.000.

While comparing results of all the stable fractures treated with DHS or PFN Harris hip score was found similar (p=0.493) and similar observation was found for all the unstable fractures treated with DHS or PFN (p=0.814)

Overall in our study the Harris hip scores of all the patients treated with either of the modality did not show any statistically significant difference at the end of one year (p=0.434).
Kumar and Singh [52] in a comparative study observed that in D.H.S. group the hip score after one month was less than P.F.N. group (p=<0.05).however this difference disappeared with the two groups on subsequent follow up at 6 month,1 yr and 2 yr.(p=>0.05).

Complications- in our series Proximal Femoral Nail group had higher complication, more operative time and difficult to perform.

There was no infection in DHS group while one case got infected in PFN group which was managed conservatively.Varus deformity and screw cutout was observed only in 10% cases of DHS group while 30% in PFN group. Z effect was noticed in 10% cases of PFN group. so overall complications are significantly more in PFN Group (45.0%) compared to DHS Group (10.0%) with P=0.031*. Madson et al[39] found that despite the theoretically increased forces needed to generate sliding, the rate of femoral head cutout in intramedullary devices was not found to be significantly increased when compared post-operatively with that of DHS

In this study, at the end of one year continuous thigh pain was seen in two cases of each group, while pain on weight bearing found in 1 case (5%) in DHS & 2 case (10%) in PFN group (p=1.000). Madsen et al found thigh pain in 0-14% cases in different studies. Saudan and colleagues[53] found that the amount of persistent pain was similar in both groups in their series.

Assessment of shortening was done post operatively and finally compared at 1 year between both the groups. Shortening is <1.5 cm in 70% case of DHS and 75% case of PFN group In 30% cases of DHS and 25% of PFN shortening was more than 1.5 cm. Distribution of shortening is statistically similar with P=0.834
Hardy et al55 documented shortening significantly less in proximal femoral nails (p=0.019) and even more so in unstable fractures (p < 0.001).
Karn NK et al56 found that At final follow-up, the number of patients with shortening external malrotation and varus angulation was more in sliding hip screw.

V. Conclusion

In our study we had similar functional outcome at the end of one year but higher number of complications and more operative time in PFN group compare to DHS group which could be attributed to the fact that Dynamic Hip Screw is an old implant and all surgeons were very familiar with the technique whereas Proximal Femoral Nail was recently introduced in our institute and thus the surgical team did not have as much experience with the implant or its operative technique as with DHS.

Hence We conclude in our study that in stable as well as in unstable peritrochanteric femoral fractures final result in terms of functional outcome are similar after one year and the choice of implant in these kind of fractures should be according to the surgeons experience and preference.

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