



## Short term Functional outcome of Harris HIP Score from Open Reduction Internal Fixation action (ORIF Intertrochanter)

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**Abstract : Background-** Intertrochanter fracture is commonly found in geriatric and young active patient and it can affects the overall health system. The death rate of intertrochanter fracture has increased by 1 person in 1 year with mortality rate of around 14-36%.**Objective-** To find out the functional evaluation by Harris hip score from the action of open reduction internal fixation (ORIF) on the intertrochanter femur fractures. **Material and Methods-**A total of 42 subjects were used in the study. The study was an observational analytic study with no retrospective pairing and with a cross-sectional approach, which aimed to analyze the clinical outcome of the Harris Hip Score after performed ORIF intertrochanter femur fracture. In this case, the control group are healthy femur from the same patient. Unpaired T-Test is use if normal distributed data aquired, otherwise Mann-Whitney is the option. The affordable population of the study was patients who were operated using internal fixation due to intertrochanter femur fracture measures in January 2012 - June 2018. **Results-**In this case the distribution of the number of intertrochanter femur fracture samples was 42 subjects with 14 women (33.3%) and 28 men (66.7%). The youngest age of the study subjects was 17 years and the oldest age of the research subjects was 82 years with a mean and standard deviation of  $60.77 \pm 18.23$  years, there were significant differences in outcomes of the clinical score of the hip score of the action Open reduction internal fixation (ORIF ) in the case of intertrochanter fracture femur, with a significance value of 0.0001 ( $<0.05$ ). **Conclusion-**From the results of the statistical analysis of the outcome of the clinical hip score score of ORIF compared to the healthy side in the case of intertrochanter femur fractures, there is a significant result (15.1%) between ORIF actions compared to the healthy side in the case of intertrochanter fracture femur, with p value  $<0.0001$ .

**Keywords :** Salter Harris, ORIF, Harris Hip Score, Intertrochanter Femur Fracture, Geriatric, Hip Injury.

## Introduction

Intertrochanter fracture is commonly found in geriatric and young active patients so that it can affect the overall health system. Although it has been supported by the development of implant forms, surgical techniques and patient care, intertrochanter femur fractures have a great effect on the existing health system. As many as 250,000 cases of fracture around hip in America occur each year and this number will increase 2 times in 2050 as the geriatric population increases.<sup>1</sup>

The death rate for fractures around hip increased by 1 person in 1 year with a mortality rate of around 14-36%. According to the journal that has been investigated, one of the problems with this proximal femoral fracture is the patient's ability to return to activity before trauma.<sup>2</sup> 50% of these patients need help in carrying out their daily activities and as many as 25% need assistance in the period long to undergo daily activities.<sup>3</sup>

Based on the description above, the researcher was very interested in conducting a study on the outcome of assessment of the clinical hip score of an open reduction internal fixation (ORIF) action on the femur intertrochanter fracture, using hip score measurement as a clinical outcome parameter to be measured.

## Method

A total of 42 subjects were used in the study. The study was an observational analytic study with nonretrospective pairing and with a cross-sectional approach, which aimed to analyze the clinical outcome of the Harris Hip Score after performed ORIF intertrochanter femur fracture. In this case, the control group are healthy femur from the same patient. Unpaired T-Test is used if normal distributed data is acquired, otherwise Mann-Whitney is the option. The affordable population of the study was patients who were operated using internal fixation due to intertrochanter femur fracture measures in January 2012 - June 2018.

## Results

The whole description of the subject characteristics in the research is shown systematically by; 1) the distribution of the demographic characteristics of the intertrochanter femur fracture subjects, 2) the distribution of demographic characteristics of the intertrochanter fracture femur subject to surgery, can be seen in tables 1 and 2.

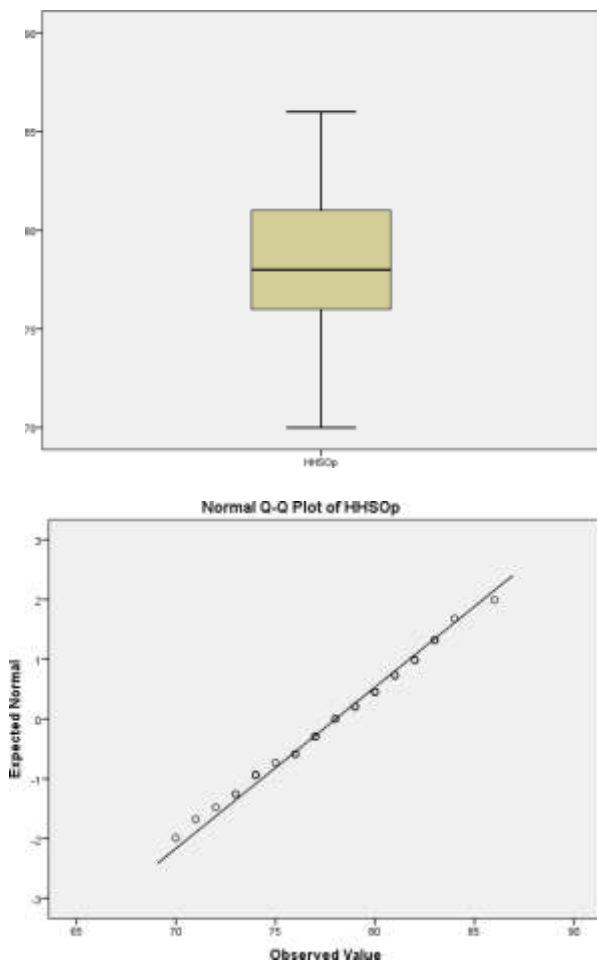
**Table.1. Distribution of demographic characteristics of intertrochanter femur fracture subjects**

Variable	Total
Female, n (%)	14(33,3%)
Male, n (%)	28(66,7%)
Youngest age	17year old
Oldest age	82year old

Table 1. It shows that the age distribution of the number of intertrochanter femur fracture samples from 42 subjects, with 14 women (33.3%) and 28 men (66.7%). With the youngest age of the study subjects 17 years and the oldest age of the research subjects 82 years with a mean and standard deviation of  $60.77 \pm 18.23$  years

**Table.2. Distribution of demographic characteristics of intertrochanter fracture femur subjects undergoing surgery**

Variable	Implant Variant			Total (n=42)
	DHS (n=19)	PFNA (n=2)	PFLP (n=21)	
Woman n (%)	8 (42,1)	0	6 (28,5)	14 (33.3)
Man n(%)	11 (57,9)	2 (100)	15 (71,5)	28 (66,7)



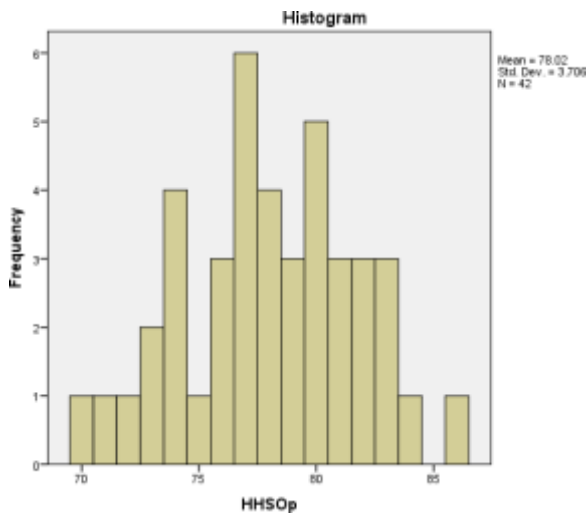
**Figure.1. ORIF, Internal Open Reduction Fixation; PFLP, Proximal Femur Locking Plate; PFNA, Proximal Femoral Nail Antirotation; n, Number of subjects**

Table 2. Shows that the distribution of sample numbers is based on the type of implant used. The sample dominance was seen in male(28 patients or 66.67%). The most used implants were 21 PFLPs.

**Table.3. Normality test for assessment of clinical hip function score from an action of open reduction internal fixation (ORIF) with hemiarthroplasty in the case of a proximal femur fracture**

		<b>Shapiro-Wilk (p-Value)</b>
Harris Hip Score	Post Operation	0,874
	Normal	0,2

Table 3. Shows that from the results of the normality test data analysis, it was found that the results of the p value obtained were 0.08 (> 0.05) indicating that the research data obtained was normally distributed.



**Figure.2. Harris Hip Score value histogram**

Because the research data is normally distributed, the statistical test used to identify the relationship between clinical outcomes of hips score in cases of fracture femur intertrochanters is unpaired T-Test.

**Table.4. Statistical analysis of the assessment of clinical function of the hip score from the action of Open reduction internal fixation (ORIF) in the case of intertrochanter fracture femur**

		Mean	P Value
Harris Hip Score	Post ORIF	78,02 ± 3,706	0,0001
	Normal	92,00 ± 1,169	

Table 4. It shows that there are significant differences in outcomes from the clinical function outcome of the hip score from the Open reduction internal fixation (ORIF) action in the case of intertrochanter fracture femur, with a significance value of 0.0001 (<0.05).

**Discussion**

This study was conducted by observational analytical study method with no retrospective pairing with a cross-sectional approach, which aims to analyze the comparison of outcomes of clinical hip score function from open reduction internal fixation (ORIF) compared to the healthy side in the case of intertrochanter fracture femur by assessing using Harris Hip Score (HHS) 6 months after surgery.

Grouping of the consecutive patients is based on gender and from this data the distribution of the number of intertrochanter femur fracture samples is 42 subjects with 14 women (33.3%) and 28 men (66.7%). With the youngest age of the study subjects 17 years and the oldest age of the study subjects 82 years with a mean and standard deviation of 60.77 ± 18.23 years.

Other groupings were made based on the type of surgery and implants used (Table. 2) and from this data PFLP was the most widely used implant (21 people), where the sex distribution of men (28 people) was more than women (14 people).

The results of this study succeeded in showing that the assessment of the hip score clinical function of the open reduction internal fixation (ORIF) action compared to the healthy side in the case of intertrochanter femur fracture had significant results between ORIF measures compared to the healthy side (p = 0.0001).

## Conclusion

From the results of the statistical analysis of the outcome of the hip score clinical function of the action of open reduction internal fixation (ORIF) compared to the healthy side in the case of intertrochanter femur fractures, there was a significant difference (15.1%) between ORIF actions compared to the healthy side in the case of the fracture intertrochanter femur, this is indicated by the p value <0,0001.

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