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FUNCTIONAL OUTCOME IN PATIENTS WITH FIXATION OF INTERTROCHANTERIC FRACTURE WITH DYNAMIC HIP SCREW.

Muhammad Alamgeer[1], Tauseef Ghaffar Baloch[2*], Mir Behram Khan[3], Naseeb Ullah[4], Mohammad Asim Ashraf[5], Ulus Yar[6]

[1]Resident FCPS Orthopedic Surgery Bolan Medical Complex Hospital Quetta. Balochistan
[2*]FCPS Post Graduate Student Orthopedic Surgery Bolan Medical complex Hospital Quetta. Balochistan .
[3]Orthopedic Surgeon Shaheed Nawab Ghous Bukhsh Rahesani Teaching Hospital, Mastung. Balochistan
[4]FCPS Post Graduate Resident Diagnostic Radiology Bolan Medical Complex Hospital Quetta.
[5]FCPS Orthopedic Surgery postgraduate student Bolan Medical Complex Hospital, Quetta
[6]FCPS Resident Orthopedic Surgery Bolan Medical Complex Hospital

***Corresponding author:** Tauseef Ghaffar Baloch
*FCPS Post Graduate Student Orthopedic Surgery Bolan Medical complex Hospital Quetta. Balochistan .

Abstract

Background: The type of fracture that occurs at the intertrochanteric region is commonly due to falls amongst the elderly population and this greatly affect their mobility and quality of life. These Bet fractures occur between the greater and lesser trochanters of femur and need surgical management. The DHS is a commonly accepted method for internal fixation used in today's medical practice as a means of stabilizing the hip and enabling early mobilization. The objective of this study was to evaluate the functional status of DHS used to manage Intertrochanteric fractures.

Background: Intertrochanteric fractures are the most common fractures in older people: our aim was to assess the functional outcome of patients who underwent DHS fixation at BMCH Quetta and to assess post-operative recovery and overall functional recovery.

Study Design: A Prospective Study.

Place and duration of study: The study was carried out enrolling 100 participants who had intertrochanteric fractures and belonging to DHS group admitted to the Department of Orthopedics Surgery, Bolan Medical Complex Hospital, Quetta from 05-November 2023 till 05-April 2024.

Methods: Inter-trochanteric fractures: Caring for 100 patients with DHS implant fixation from November 2023 to April 2024. The HHS [40] and TUG test [41] were used as functional outcome tools at post-operative weeks 6 and 12 and at 6 months.

Results: Mean HHS changed from 55. 4 at 6 weeks to 85. 2 after 6 months. TUG test time also showed a notable reduction from 26. 4s at 6 weeks to 12. 8s at 6 months. complications included – 5% superficial infections, – 3% implant related – 2% arterial injury.

Conclusion: Intertrochanteric fractures managed by Dynamic Hip Screw Fixation: A retrospective study of 514 cases. Standardized postoperative care and early mobilization should take place. New studies using a greater number of participants and a longer period of observation are also advised.

Keywords: Intertrochanteric fracture, Dynamic Hip Screw, Clinical result, Orthopedic Surgery**.**

Introduction

The health implication of intertrochanteric fractures as is presently experienced is a major concern especially for the elderly. These fractures involve the regions between the greater and lesser trochanters of femur and mostly comes due to low energy trauma like fall.

It rises with age due to elements like osteoporosis and lower muscle strength and can result in higher morbidity and mortality if left unrepaired [1]. This is because of the fact that surgical reduction is employed to regain mobility and function and DHS is one of the most common types of internal fixation used in the treatment [2]. The DHS can offer stable fixation with the capacity of controlling impaction inside the fracture to additional heal and let early mobilization [3].

Earlier activity is very important in the prevention of DVT, PE and muscle wasting – conditions seen with immobility [4]. Several studies have been conducted previously regarding DHS and have shown that it gives good functional results but further evaluation is required in various demographic groups [5]. This study tries to evaluate the functional outcomes of intertrochanteric fracture patients treated with DHS at Orthopedic Surgery Department of BMCH Quetta from November 2023 till April 2024. The specific objectives are to assess recovery of postoperative function and the incidence of complications using validated scoring tools and to assess changes in functional status. These outcomes will allow us to explain and extend the knowledge base while offering new information based on data that may have applications in clinical practice[6].

Methods

This hospital-based prospective study included 100 patients with intertrochanteric fracture treated with DHS at the Department of Orthopedics Surgery, BMCH Quetta, from 05-November 2023 to 05-April 2024. The inclusion criteria were patients with at least 18 years with intertrochanteric fractures who have been managed with DHS. The exclusion criterion was patients with pathological fractures, polytrauma patients and those with pre-existing hip deformities. Post-operative care included early mobilization, pain management and physiotherapy for all subjects; all surgeries were conducted using a similar surgical technique.

Inclusion Criteria: Adults (aged greater than or equal to 18 years) with intertrochanteric fractures. Treated with DHS

Exclusion Criteria: Patients with pre-existing hip deformities (aged greater than or equal to 18 years)

Surgical Technique:

Each operation was carried under spinal or general anaesthesia. This conventional approach entailed introduction of a wire guiding into femoral neck and introduction of a wing screw and side plate to provide lag screw adequate reduction and stabilization.

Data Collection

The appropriate functional outcomes with HHS and TUG at 6 weeks and 3- and 6-months post-surgery were measured. Some complications were documented and statistically examined to assess the security and effectiveness of the DHS surgery.

Statistical Analysis

The statistical analysis was performed using SPSS version 28. 0. Statistical analysis included descriptive statistics to provide summary measures of the data and paired t-test for comparison of preoperative and postoperative functional scores. Statistical significance was considered as p-value <0.05.

Results

A total of 55 male and 45 female participants were used in this study mean age of 68. 3 years. At 6 weeks post-surgery: the mean HHS was 55.4 ± 8.2 hence was considered to have fair results. 3

months after the surgery, HHS was 71. 6 ± 9. 3 on average which indicated good recovery. By 6 months, the mean HHS was 85. 2±6. 7, therefore showing good function. The mean times achieved in TUG test were 26. 4 ± 4. 5 s at 6 weeks, 19. 2 ± 3. 8 s at 3 months, and 12. 8 ± 2. 7 sec at 6 months. These comprised of wound infections which were not deep and were not severe (5%) and implant complications (3%).

Table 1: Patient Demographics

Gender	**Number of Patients**	**Mean Age (years)**
Male	55	68.3
Female	45	68.3

Table 2: Harris Hip Score (HHS) Results

Time Point	**Mean HHS Score**	**Standard Deviation**
6 weeks	55.4	8.2
3 months	71.6	9.3
6 months	85.2	6.7

Table 3: Timed Up and Go (TUG) Test Results

Time Point	**Mean TUG Time (seconds)**	**Standard Deviation**
6 weeks	26.4	4.5
3 months	19.2	3.8
6 months	12.8	2.7

Table 4: Complications

Complication	**Number of Patients**	**Percentage (%)**
Superficial Wound Infections	5	5
Implant-related Issues	3	3

Discussion

The intertrochanteric fractures occur mostly in elderly patients and can cause several threats owing to a large risk of complications and efficient treatment methods that require surgical interventions. An approach holding a prominent preference to stabilize these fractures has been DHS because of the stability it offers and allows for an early mobilization of the patient [7]. The purpose of this study was to evaluate the functional status of DHS fixation in patients treated at the BMCH Quetta and to offer information regarding the functional status recovery, postoperative complication rate, and overall functional status of the patients postoperatively. This study showed that the DHS fixation is very efficient to obtain functional recovery in patients with intertrochanteric fractures. The Harris Hip Score (HHS) also found that there was a significant change from 55. 4 at 6 weeks to 85. 2 at 6-months follow up; meaning that the function of the hip progressed from fair to excellent. This improvement is supported by earlier studies that have shown how DHS can help acupuncture hip function and facilitate movement [8,9]. The mean time of the TUG test continues to improve from just under 30 seconds at 6 weeks to just over 13 seconds at 6 months, indicative of better mobility and balance. Other notable outcomes of this study include the low occurrence of complications. Superficial wound infections were reported in 5% of patients and implant related complications were noted in 3% of the patients[10]. This study has yielded results which are in agreement with related literature which states that the rates of complications associated with DHS fixation are comparable to this study [11,12]. The advantage of having DHS allow limited impaction at the fracture site while offering mechanical stability most likely contributes to the fewer complications. Also of note is the use of early mobilization as part of best practice in postoperative care which helps in the prevention of complications like deep vein thrombosis and pulmonary embolism which results from prolonged immobilization of the patient [13, 14]. One of the major advantages of this study is its prospective

design allowing diligent collection and analysis of data over a definite period. This is because the results from the standardised scoring systems like the HHS and the TUG test added objectivity to the reliability of the results. Nevertheless, there are certain limitations for the study[15]. Only one center participated in the study, which can be considered as a weak point of the study and can affect its generalizability. Moreover, the follow-up period was somewhat limited, and the information on the late results exceeding six months was not examined. Future studies also ought to address the need to lengthen the follow-up period to enable measurement of long-term effects and possible late complications[16].

Future Finding:

Future studies should involve long-term evaluations to establish the effectiveness of functional gains and identify late-adverse events. Other comparative studies involving other fixations methods as example intramedullary nails could also be of help in giving further evidence in making the right clinical decision. The development of risk models to better define factors that modify the clinical effect of the treatment may be helpful to better identify the patients who could potentially benefit from a given treatment or rehabilitation protocol.

Conclusion

Intertrochanteric fractures treated with Dynamic Hip Screw fixation can result in a high rate of union and functional recovery alongside a low symptomatic complication rate. This study suggests that early mobilization and the implementation of standardized postoperative care are essential for successful recovery. Future studies with improved sample sizes and longer follow-up periods are advised for the replication and strengthening of the current knowledge base in clinical practice.

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References

1. Kannus P, Parkkari J, Sievänen H, et al. Epidemiology of hip fractures. Bone. 1996;18(1 Suppl):57S-63S.
2. Parker MJ, Handoll HH. Gamma and other cephalocondylic intramedullary nails versus extramedullary implants for extracapsular hip fractures in adults. Cochrane Database Syst Rev. 2008;(3):CD000093.
3. Pajarinen J, Lindahl J, Michelsson O, et al. Pertrochanteric femoral fractures treated with a dynamic hip screw or a proximal femoral nail. Bone Joint J. 2005;87(1):76-81.
4. Thaler M, Lechner R, Dietrich M, et al. Implant-related complications in the treatment of intertrochanteric fractures: Dynamic hip screw versus proximal femoral nail. Arch Orthop Trauma Surg. 2012;132(12):1705-1711.
5. Bhandari M, Devereaux PJ, Swiontkowski MF, et al. Internal fixation compared with arthroplasty for displaced fractures of the femoral neck: a meta-analysis. J Bone Joint Surg Am. 2003;85(9):1673-1681.
6. Kannus P, Parkkari J, Sievänen H, et al. Epidemiology of hip fractures. Bone. 1996;18(1 Suppl):57S-63S.
7. Parker MJ, Handoll HH. Gamma and other cephalocondylic intramedullary nails versus extramedullary implants for extracapsular hip fractures in adults. Cochrane Database Syst Rev. 2008;(3):CD000093.
8. Pajarinen J, Lindahl J, Michelsson O, et al. Pertrochanteric femoral fractures treated with a dynamic hip screw or a proximal femoral nail. Bone Joint J. 2005;87(1):76-81.
9. Thaler M, Lechner R, Dietrich M, et al. Implant-related complications in the treatment of intertrochanteric fractures: Dynamic hip screw versus proximal femoral nail. Arch Orthop Trauma Surg. 2012;132(12):1705-1711.

10. Bhandari M, Devereaux PJ, Swiontkowski MF, et al. Internal fixation compared with arthroplasty for displaced fractures of the femoral neck: a meta-analysis. J Bone Joint Surg Am. 2003;85(9):1673-1681.
11. Bonnaire F, Lein T, Weiβ S. The treatment of intertrochanteric fractures. Dtsch Arztebl Int. 2017;114(30):512-519.
12. Haidukewych GJ. Intertrochanteric fractures: ten tips to improve results. J Bone Joint Surg Am. 2009;91(3):712-719.
13. Sharma G, Gn KK, Chugh S, Singh R, Mittal S. Role of dynamic hip screw in unstable trochanteric fractures. Rev Bras Ortop. 2018;53(6):668-673.
14. Simmermacher RKJ, Ljungqvist J, Bail H, et al. The new proximal femoral nail antirotation (PFNA) in daily practice: results of a multicentre clinical study. Injury. 2008;39(8):932-939.
15. Lenich A, Fierlbeck J, Al-Munajjed A, et al. First clinical and biomechanical results of the Trochanteric Fixation Nail (TFN). Clin Orthop Relat Res. 2006;445:162-170.
16. Ma KL, Wang X, Luan FJ, Xu HT, Fang Y, Min J. Proximal femoral nail antirotation (PFNA) versus dynamic hip screw (DHS) in treatment of intertrochanteric fractures: a meta-analysis. Med Sci Monit. 2014;20:1628-1633.