

A Comparison between Treatment Outcome of DHS and DCS Fixation in Hip Fracture and its Associated Medical Complications; An Observational Study

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ABSTRACT

Introduction: Trochanteric fractures are devastating injuries that commonly affect the elderly and have a tremendous impact on the health care system and society in general. Fracture are often associated with various complications. The purpose of our study was to compare treatment outcome of DHS and DCS fixation in hip fracture and its associated complications.

Material and methods: a total of 60 patients were selected for the study. Clinical and radiographic examinations were performed at the time of admission and postoperatively. Follow up was done at an interval of 6th month, and 12th month. Various complications reported were recorded

Result: Most common complication reported was urinary infection in our study. There was no significant treatment outcome of two different groups.

Conclusion: Over 90% of hip fracture occurs in older age group i.e. 65 years. With the increasing age increases the complications has been noticed.

Keywords: Hip Fracture, Complications, Dynamic Hip Screw Fixation, Dynamic Condylar Screw

MATERIAL AND METHODS

This study was conducted prospectively on a group of 60 patients with trochanteric fractures who reported to our hospital. Out of 60 patients 35 were males and 25 were females. Age group selected for the study was patients aged between 50 to 80 years.

Inclusion criteria and exclusion criteria

1. Patients above 50 years were selected
2. Patients with trochanteric and intertrochanteric fracture
3. pathological fractures were excluded,
4. fractures in children,
5. Medically compromised patients were excluded from the study

Patients were hospitalized. After hospitalization detail description regarding the treatment was provided to the patients. Ethical clearance was obtained from ethical committee. A written informed consent was obtained from the patient before the treatment and possible complications were explained. All patients were examined; demographic details were obtained for record purpose. Routine blood investigations, serum electrolytes, sugar, urea, creatinine, blood grouping were done. HBsAg, HIV was routinely done for all cases that were subjected to surgery. Radiograph was obtained before and after surgery. All data regarding the mode of injury and other particulars were recorded in a detailed proforma.

A total of 60 patients were included in the study, these patients were divided in two group. 30 patients were treated with dynamic hip screw (Group 1) and 30 were treated with dynamic condylar screw (Group 2). Surgery was performed and standard method of instrumentation and fixation were performed. The modified Harris Hip Score without assessing the hip motion was used to determine pre-fracture status, and the Harris Hip Score (HSS) was used for postoperative 6th and 12th month functional assessment. Patients were

INTRODUCTION

Fracture is a medical condition in which there is damage in the continuity of the bone. A bone fracture may result due to high force impact or stress, or a minimal trauma injury. Certain medical conditions are also reported which causes pathological fracture by weakening the bones, such as osteoporosis, bone cancer, or osteogenesis imperfecta.¹ Fractures can involve different types of bone, single or multiple fracture can occur at a time. Hip fracture also called as trochanteric femoral fracture is common in elderly patients.² Johnell and Kanis reported that there were an estimated 1.33 million new hip fractures worldwide in 1990.³

The treatment goal is early rehabilitation through stable reduction and firm internal fixation.⁴ However, preexisting medical co morbidities in elderly age can have an important influence in its prognosis and treatment.⁵ Various treatment modalities are used to treat trochanteric and intertrochanteric fracture. Some authors have suggested Dynamic hip screw (DHS) fixation as gold standard for treatment of stable intertrochanteric fractures where as Nungu et al reported that Dynamic condylar screw is able to tolerate bending loads better.⁶⁻⁸

So we aimed to compare treatment outcome of DHS and DCS fixation in hip fracture and its associated complications.

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examined for the post operative complications like cognitive and neurological problem, urinary tract infection etc. and a record was maintained.

STATISTICAL ANALYSIS

Each variable was analyzed and the level of significance was set at $p < 0.05$. variables were assessed by Student's t-test (Harris Hip Score, operating time, blood loss and Visual Analogue Score of operating difficulty) Data was analyzed by specific statistical software (IBMSPPS V10 STATISTICS, IBM, ARMONK, USA).

RESULTS

A total of 60 patients aged 50 to 80 years were selected randomly for the study. Out of 60 patients 35 (58.3%) were males and 25 were females (41.6%) (Table 1). Age distribution was done, in our study maximum numbers of patients were aged 60-70 years i.e. 42.8%, 15 out of 70 patients were aged between 50 to 60 years and 70 to 80 years (Figure 1). All 60 patients were divided in two groups based on the treatment i.e. Group 1- DHS included 30 patients and Group 2- DCS included 30 patients.

A clinical comparison between DHS and DCS was done based on operating time, bleeding during operation, healing after surgery and Harris hip score. Mean operating times for DHS was (54.2 ± 12.8) min and DCS was (43.1 ± 12) min. bleeding during operation in DHS group was (195.7 ± 42.5) ml and DCS was (170.1 ± 47.7) ml. no significant difference was found in the clinical outcomes of both the groups in our study (Table 2)

Post surgery patients were examined for the complications. Complications recorded in current study are cognitive/neurological, cardiac and vascular, gastrointestinal, urinary. Out of 60 patients 20 reported postoperative medical complications (33.3%). Most common complication recorded in current study was urinary tract infection in 10 patients (16.6%), followed by cardiac/vascular and cognitive/neurological in 4 patients each (Figure 2).

DISCUSSION

The first documented evidence of hip fractures is seen in the sculptures of the Greek temple. 60 cases of hip fractures were operated in our institution. Hip fracture is often associated with lot of medical complication probably due to the age

group of the patient. In current study most common age group was 60 to 70 years which is similar to those reported by Menzies IB et al.⁵ Clayer MT and Bauze RJ reported that Hip fractures are associated with high morbidity and mortality, (20%) can be expected in the year following the injury.⁹

Few authors reported incidence of preoperative myocardial ischemia in aged patients suffering hip fracture surgery has been informed to be 35% to 42%.¹⁰ In current study cardiac complications were noticed in four patients (Figure 2). In our study most common complication was urinary tract infection the possible reason could be long use of catheters. Chong CP et al¹¹ suggested that catheters should be removed as soon as possible, we agree with the authors though limited evident is present for the same.

Various implants have evolved over time to manage different types of fracture. Nails, Massie nail and the Jewett nail, blade plates and Kuntscher rods has been reported in literature by many authors.^{12,13} Radford et al and Nungu et al mentioned about DCS and its ability to tolerate bending loads in their study.^{8,14} In present study we used dynamic hip screw and

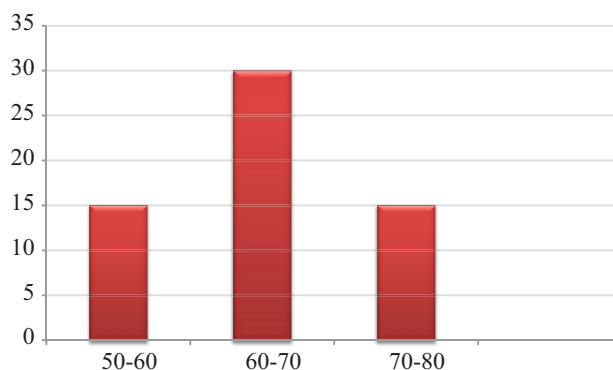


Figure-1: Age distribution

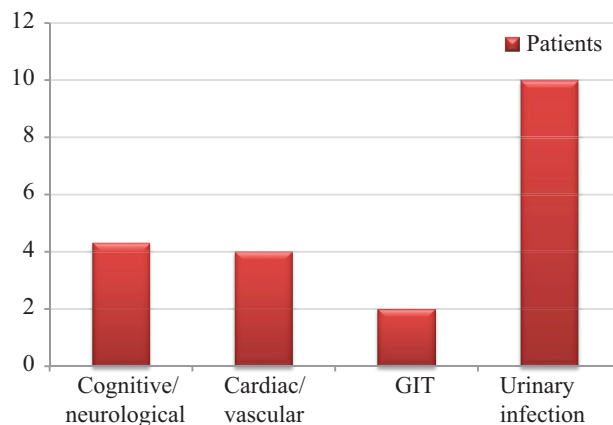


Figure-2: Medical complications recorded

Age group	50-80
Males	35
Females	25
Total	n = 60

Table-1: Demographic data

	DHS n=30	DCS n=30	p value
Operating time	(54.2 ± 12.8) min	(43.1 ± 12) min	0.345
Bleeding duration	(195.7 ± 42.5) ml	(170.1 ± 47.7) ml	0.421
Healing	(10.6 ± 1.8) weeks	(12.2 ± 2.6) weeks	0.361
Harris hip score	(84.2 ± 11.2) scores	(89.3 ± 8.4) scores	-

Table-2: comparison of clinical effect of DHS and DCS

dynamic condylar screw. According to the literature DHS fixation permits fracture compression along the femoral neck that leads to femoral neck shortening.¹⁵⁻¹⁷ However, such findings were not evident in our study. No significant difference was found in the treatment outcome of both the groups. No treatment failure was evident in our study.

CONCLUSION

Treatment of hip fracture can be complicated for elderly people. It can be challenging due to increased age group and pre existing medical conditions. It is important to recognize the pattern of fracture before treatment. The dynamic condylar screw and dynamic hip screw is a safe and reliable implant for the management of hip fractures. Much data is not available for the former however within the limitations of our study we suggest the use of DHS and DCS in hip fracture. Most common medical complication in current study was urinary tract infection.

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