ORIGINAL RESEARCH

A study on the complications in the study subjects treated with dynamic hip screw

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ABSTRACT
Bone density exhibits a strong negative correlation with fracture risk. Height & body mass a positive correlation with hip fractures. Diet, smoking & alcohol consumption, all of these have their implication in increasing the risk of hip fractures. Those patients who gave consent for surgery were thoroughly examined for surgical fitness and detailed history with clinical examination was done as per a prewritten proforma. The associated risks that were evaluated after thorough examination and investigation of study subjects were as follows. Chronic obstructive pulmonary disease in 6 patients, lower respiratory tract infection in 3 patients, diabetes mellitus in 7 patients and hypertension in 4 patients. All patients were radiographed at an interval of 6-8 weeks till the evidence of union. The average duration of follow-up was 6 months, ranging from 4 months to 13 months. There were minimal immediate post-operative complications with 3 patients (7.14%), having superficial skin infections.

Key words: Dynamic hip screw, complications, HIP joint

INTRODUCTION

HIP Joint is a simple ball and socket joint in which the spherical head of femur fits closely in a deep bony cavity reinforced by a capsule and its strong ligaments.

The capsule of the hip is attached proximally about the rim of the acetabulum. Distally, it is attached firmly to intertrochanteric line, anteriorly and ½ an inch proximal to the intertrochanteric crest, posteriorly. The posterior attachment is little weak. The capsule is closely applied to the neck of femur distally.[1]

Though the incidence of intertrochanteric fractures is usually in the elderly, there is increase in the incidence in the younger age group. This is due to sharp increase in the road traffic accidents involving fast moving vehicles.

Usually, hip fractures are more common in the females than the males. This disparity is due to women's lower bone mass, lower bone density & higher frequency of falling.[2]

Medical co-morbidity, especially those affecting the mental status, sensory perception, balance & locomotion are associated with an increased risk of hip fractures.

Any condition that predisposes the individual to syncope or fall represents risk factor.

An individual who has sustained prior hip fracture is 1.6 times at more likely to have a contralateral hip fracture.[3]

Hip axis length, i.e. the distance along the femoral neck axis from the base of the greater trochanter to the inner pelvic brim-has been positively correlated with increased hip fracture risk.[4]

Long-acting benzodiazepines may lead to a fall, long term use of anticonvulsants, can lead to osteomalacia, or long-term corticosteroids may decrease the bone density to lead to hip fractures.[5]

Bone density exhibits a strong negative correlation with fracture risk. Height & body mass a positive correlation with hip fractures.

Diet, smoking & alcohol consumption, all of these have their implication in increasing the risk of hip fractures.[6]

METHODOLOGY

Study subjects were selected from those who attended orthopaedic outpatient department with history of fall/RTA and other modes of injury, with complaints of severe pain in the hip region and inability to walk

after the injury. After confirming the diagnosis of intertrochanteric fracture by radiographs, the study subjects were explained about the fracture and the method of surgical treatment. Those patients who gave consent for surgery were thoroughly examined for surgical fitness and detailed history with clinical examination was done as per a prewritten proforma.

The associated risks that were evaluated after thorough examination and investigation of study subjects were as follows. Chronic obstructive pulmonary disease in 6 patients, lower respiratory tract infection in 3 patients, diabetes mellitus in 7 patients and hypertension in 4 patients. Physicians concerned treated all of them. Patients with hypertension and diabetes mellitus were mild to moderate cases and required oral medications for few days. Patients with lower respiratory tract infection were treated with antibiotics and those with chronic obstructive pulmonary disease were given appropriate treatment and nebulization.

POSTOPERATIVE TREATMENT

Foot end elevation was done depending on the patients' postoperative blood pressure. Every half hour BP, pulse rate, respiratory rate and temperature were recorded for the first 24 hours. Antibiotics were continued postoperatively for five days. Analgesics were given as per patients' compliance. Drain was removed after 48 hours.

Patients were allowed to sit as soon as the pain reduced, and active exercises of upper and lower extremities were begun. Depending on the stability of fixation, type of the fracture & the patients' condition, partial weight bearing was begun as soon as the pain allowed to do so and continued until radiological union of the fracture. In severely comminuted fractures weight bearing was delayed for about 2 to 3 weeks.

Sutures were removed on 10^{th} or 12^{th} postoperative day. Patients were discharged from the hospital when they were able to walk independently with walking aids.

FOLLOW-UP

All patients were radiographed at an interval of 6-8 weeks till the evidence of union. The average duration of follow-up was 6 months, ranging from 4 months to 13 months.

Clinical assessment included postoperative pain, walking ability, hip and knee function, radiological fracture union and implant-bone interaction. Patients were followed at an interval of 6 weeks, 3 months, 6 months and 12 months. On every follow-up visit, patients were examined in detail for the functional ability with respect to ambulatory status, ability to squat, sit cross-legged and walk for a small distance.

RESULTS

Table 1: Observations during Surgery

Mean Duration of Screening (SEC)	42.3 Sec
Mean Duration of Operation (MIN)	74.4 Sec
Mean Blood Loss (mL)	382.2 mL
Mean Length Of Incision	9.2 cms

Table 2: Post-operative complications

Complications	No. of Cases	Percentage (%)
Superficial skin infection	3	7.14%
Deep infection	-	-
Shortening <2 cms	7	16.67%
Shortening >2 cms	-	-
External Rotation Deformity	-	-
Coxavara deformity	-	-
Cut-out	1	2.38%
Implant failure	1	2.38%
Death	-	-

There were minimal immediate post-operative complications with 3 patients (7.14%), having superficial skin infections.

DISCUSSION

Of the 42 patients, who underwent Dynamic Hip Screw with barrel plate fixation of intertrochanteric fractures, 3 patients had early post-operative complication of superficial skin infection on 3^{rd} post-operative day, which subsided with prompt dressing and antibiotics.

During their follow-up period, 7 patients showed shortening of the limb on the side of the fractured limb. It was less than 2 cms compared with that of the normal. Radiologically, there was no evidence of deformity.

One of the patients, returned with limp and pain after 2 months. Radiographs showed a cutout of the implant which was removed and was managed conservatively.

The patient was followed up for the next four months and radiographs were taken regularly. At the end of 6 months, patient showed nonunion on radiographs.[7]

One patient, who was overweight and did not follow the instructions of partial weight bearing, had an implant failure with breakage of barrel plate at the neck of the barrel. This occurred after 1 months of surgery, before fracture had united. The implant was removed, and DHS reapplied with bone grafting. A follow-up after 6 months showed evidence of union at the fracture site radiologically.[8]

In our study, decubitus ulcers, osteonecrosis of femoral head, lag screw-side plate separation, intrapelvic penetration, which are other complications were not seen.

CONCLUSION

There were minimal immediate post-operative complications with 3 patients (7.14%), having superficial skin infections

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