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Original Research Paper

Orthopaedics

ASSESSMENT OF FUNCTIONAL OUTCOME OF SURGICAL MANAGEMENT OF PROXIMAL HUMERUS FRACTURE TREATED WITH PHILOS PLATE

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ABSTRACT

Background: This study is conducted to evaluate the results in terms of functional outcome of proximal humeral fractures treated by anatomic locking compression (PHILOS- proximal humerus interlocking system) plate.

Methods: This prospective study was a study on patients with fracture of proximal humerus. Patients who fulfilled the inclusion criteria were invited to participate in the study. Informed consent was obtained from all the patients willing to participate in the study.

Results: Results after 6 month was better for type A(2 part) followed by type B(3 part) and type C(4 part) resp. mean % improvement in shoulder score as compared to normal contralateral shoulder was 75.15 in total study group while divided between type A,B,C (2 part, 3 part, 4 part) it was 79.02, 77.27, 75.69 resp. in terms of absolute scores mean score for whole study group after 6 month was 73.6 while among type A,B.C(2 part, 3 part, 4 part) it was 77.12, 75.69 and 73.71 resp.

Conclusions: Philos plate fixation for proximal humeral fractures provides good stable fixation with good functional outcome and is a feasible option.

KEYWORDS : Philos plating, Proximal humerus fractures, Shoulder fractures

INTRODUCTION

Proximal humeral fractures account for approximately 5% of all fractures[1]. Within the last three decades, the age-adjusted incidence of proximal humeral fractures increased by 15% per year.[1]

The incidence of proximal humeral fractures is increasing, probably due to the ageing society and the associated increase in the incidence of osteoporosis[2]. These are very common and accounts for 1 in 20 of all fractures and have a bimodal age distribution[3,4]. About 80% of fractures of proximal part of humerus are only slightly displaced and yield good functional results when treated non-operatively[5]. However 15 to 20% are displaced and are a therapeutic challenge and have variable prognosis.

Open reduction and internal fixation (ORIF) with locking plating is proving to be a promising option in the treatment of displaced, comminuted proximal humerus fractures. This approach offers several potential advantages compared with more traditional open techniques.These benefits include improved fracture stability because of the fixed-angle construct, particularly in more comminuted fracture patterns and in osteoporotic bone; a short period of immobilization with the opportunity for earlier rehabilitation.[6]

This study is conducted to evaluate the results in terms of functional outcome of proximal humeral fractures treated by anatomic locking compression (PHILOS- proximal humerus interlocking system) plate.

MATERIAL AND METHOD

This prospective study was a study on patients with fracture of proximal humerus admitted.

Inclusion Criteria:

1. Closed proximal humerus fracture
2. Patients consenting to study
3. Skeletally mature.

Exclusion Criteria:

1. With vascular injuries
2.Open fractures
3.Medically or anaesthetically unfit patient

Statistical Tool

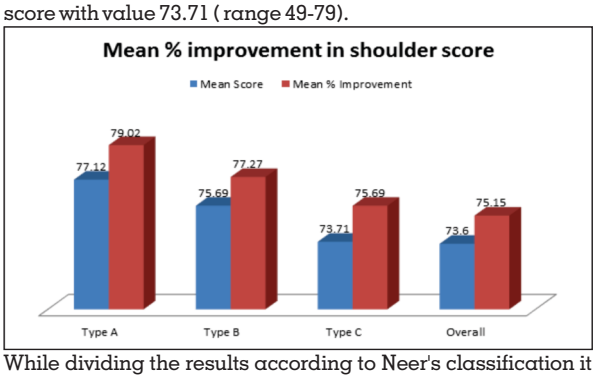
Simple statistical tools of mean and percentage were use, as this study is not a comparative study.

RESULTS

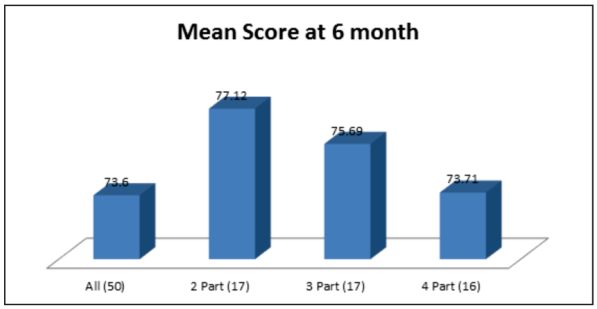
The mean age of study group was 44.14 years. The most of the patients are in the age group of 4th and 5th decade. The majority of patients were from male sex. Right side involvement (68%) is predominant. The most common mode of injury was road traffic accident (28, 56%) giving rise to 3 and 4 part fractures commonly while 2nd most common cause was fall (17, 34%) causing mostly 2 part fracture.

The mean % improvement in shoulder score for all 50 patients at the end of follow up of 6 month was 75.15% of the contralateral (normal) shoulder score. When the result were related to fracture classification, Type A fractures had the average % constant and murley score 79.02% (range 52-90), followed by Type B fractures 77.27% (range 62.8-91), and Type C fractures 75.69% (range 49-83).

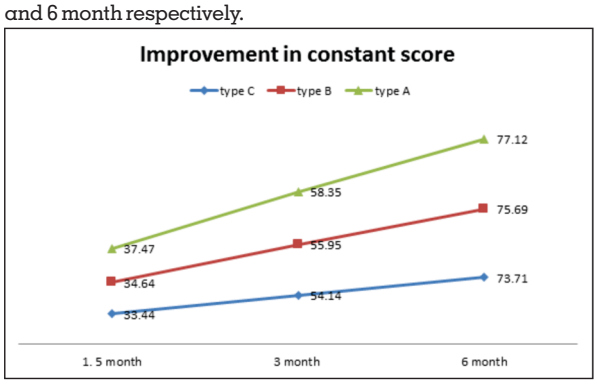
In terms of absolute constant score the mean score for all patients achieved after 6 month was 73.6 again dividing it according to severity of fracture, type A again had the best result with mean score of 77.12 (range 52-90), type Bhad mean score of 75.69 (range 54-91) while type C had least mean score with value 73.71 (range 49-79).



While dividing the results according to Neer's classification it was found that the mean shoulder score for 2 part , 3 part and 4 part fractures were 77.12, 75.69 and 73.71 respectively as against of mean shoulder score of all patients 73.6.



The average constant and murley score after 6 weeks was 33.34 point, after 3 month it was 54.02 points and after 6 month it was 73.6 point . For the same time zones the mean score for type A was 37.47 , 58.35, 77.12, for type B was 34.64, 55.95, 75.69 and for type C was 33.44, 54.14, 73.71 at 1.5, 3 and 6 month respectively.



The greatest limitation in the constant-murley score parameter were abduction and external rotation with mean score being 6.68 and 6.2 resp. while forward flexion and internal rotation were good to improve with final mean score being around 7 each. The pain parameter showed excellent result after 6 month with mean score 14.9 (maximum 15 point). The every day activity and position of arm show very good result with mean score around 8.5 each.

The power show good result with mean score 16.56 (25 point maximum).

DISCUSSION

Kilik et al (2008)[6] studied Proximal humerus fractures of 22 patients treated with the PHILOS locking plate. The fractures were reduced by the transdeltoid lateral approach (n=8) using minimally invasive surgery, and by the anterior deltopectoral approach (n=14) using open surgery. The mean Constant-Murley score was 75.5 (range 51 to 93) similar to our study. There was no significant difference between Constant-Murley scores of patients undergoing the transdeltoid lateral and anterior deltopectoral approaches.

In a series of 20 consecutive patients, Koukakis et al[7] showed favorable early results with surgical treatment of proximal humeral fractures using the PHILOS plate. After a mean follow up of 16 months, the mean Constant score was 76.1. The results did not differ with respect to age (<65 years *vs.* ≥65 years).

Brian D. solberg et al (2009)[8] studied and compared the functional outcome of treatment of 3 and 4 part proximal humerus fractures with locking plate versus hemiarthroplasty. They found that use of locked plate resulted in better outcome scores than hemiarthroplasty in similar patients despite a higher overall complication rate. They also found that the results with locking plate were significantly better in 3 part fractures and valgus impacted 4 part fractures. Moreover 4 part fractures were more prone to go into avascular necrosis. Mean constant score for 3 and 4 part fractures were 71.6 and 64.7 respectively. We in our study were able to get better outcome with result in 3 and 4 part fractures being 75.69 and 73.71 resp. and we also had very less complications in their comparison (24 v/s 50).

CONCLUSION

This study was done to evaluate the functional outcome following surgical management of proximal humerus fracture by PHILOS plate. Adequate surgical skills and surgeon's experiences with the surgical technique are necessary to achieve correct implant fixation and avoid intraoperative errors. Also postoperative physiotherapy plays an important role in rehabilitation of the patient to provide good results. In conclusion, the internal fixation of proximal humeral fractures with the use of PHILOS plates yields reliable results when utilized correctly. With the use of correct surgical technique by a competent surgeon, the anatomic locking compression plate is a suitable option for surgical management of proximal humeral fractures providing a good functional outcome.

REFERENCES:

1. CourtBrown CM, Caesar B. Epidemiology of adult fractures: a review. Injury 2006;37: 691-697
2. Kannus P, Palvanen M. Niemi S. Paakkari J, Jarivnen M, Vuori L. Ostioporotic fractures of the proximal humerus in elderly Finnish persons: sharp increase in 970-1998 and alarming projections for the new illennium. Acta Orthop Scan 2000;71:465-70.
3. Baron JA, Barrett JA, Karagas MR> The epidemiology of peripheral fractures. Bone. 1996;18(3 suppl):209S-213s.
4. Neer CS 2nd. Displaced proximal humerus fractures. I. Classificatin and evaluation.JBJS Am. 1970;52:1077-89.
5. Iannotti J P. Ramsey M L. Williams G R. Warner J P. Nonprosthetic management of proximal humeral fractures. J Bone Joint Surg (Am) 2003;85:1578-93.
6. Bulent KILIC, Mustafa UYSAL, Bekir Murat CINAR, Gurkan OZKOC, Huseyin DEMIRORS,1 Sercan AKPINAR Early results of treatment of proximal humerus fractures with the PHILOS locking plate Acta Orthop Traumatol Turc 2008;42(3):149-153
7. Koukakis A, Apostolou ; CD , Taneja T, korres DS, Amini A. Fixation of proximal humerus fractures using the PHILOS plate: early experience. : Clin Orthop Relat Res. 2006 Jan;442:115-2
8. Brian D. Solberg, Charles N. moon, Dennis P. Franco, Guy D. Paiement. Surgical treatment of three and four part proximal humeral fractures. JBJS (Am)2009;91:1689-97