

Outcome of Hemi Arthroplasty in Neck of Femur Fracture



Medical Science

KEYWORDS : Surgical outcomes, Fracture neck of femur, hemiarthroplasty, Harris hip score, visual analogue scale.

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ABSTRACT

INTRODUCTION: Fracture neck of femur is a common injury in the elderly population. The modern approach following orthopedic surgery has shifted towards patient satisfaction and the quality of life. For this purpose, evaluate the functional outcome of hemiarthroplasty in fracture neck of femur in addition to surgical responses in elderly patients.

METHODS: This prospective study included 100 cases with fracture neck of femur between 60-75 years of age in whom hemiarthroplasty was performed. The patients were reevaluated at six weeks and at six months postoperatively and assessed using Harris Hip Score (HHS) and Visual analogue scale (VAS) for evaluation of outcome.

RESULTS: The mean age of patients was 68.6±4.42 yrs and male: female ratio was - 54(54%): 46(46%). The mean HHS score was 72.44±6.70 by the end of six months. The mean pain score on VAS Scale was reduced to 2.1±0.6 at six months follow-up visit. No significant complication except for pulmonary complications was seen in postoperative period but they all resolved with proper medical care by six week follow up. No patient required revision surgery.

CONCLUSION: We observed a significant change in HHS and VAS at the end of six months. Harris Hip Score (HHS) provides information on a multitude of factors, about the level of activities a patient can resume postoperatively. Fair to good scores were observed in many of the patients. Hemiarthroplasty for fracture neck of femur in elderly does provide early ambulation, good functional outcome, pain free joint with minimal complications without the need for revision surgery.

INTRODUCTION

Fall is the leading cause of injuries and hospital admissions in the elderly population. [1] Femoral neck fractures account for over 90% of hip fractures, occurring in approximately equal proportions. [2] Economically these fractures contribute a large burden on health care. Fracture neck of femur is coupled with poor bone quality and loss of fixation as the common problems of attempts to fix these fractures. Displaced intracapsular fracture of the femoral neck can be treated with internal fixation, unipolar or bipolar arthroplasty or total hip replacement, but each has disadvantages and the optimal treatment of these fractures remains controversial.[3] Despite good results achieved with total hip replacement, the trend in our hospital is to treat any type of intracapsular hip fracture with hemiarthroplasty. Traditionally the end results of joint replacement were based on morbidity/mortality rates and operative complications. The modern approach to outcomes following Orthopaedic surgery has shifted from the success or failure of implants towards patient satisfaction and the quality of life achieved. To this purpose, we evaluated the functional outcome in addition to surgical outcomes of hemiarthroplasty in fracture neck of femur in these elderly patients.

METHODS

This study conducted in the department of orthopedics, Vinoba Bhawe Civil Hospital. All patients above fifty five years undergoing hemiarthroplasty treatment for fracture neck of femur during the period 2012-2015 were studied. Informed consent was obtained from the patients. Patients with basitrochanteric fracture, infection, fracture neck of femur more than one year, unfit for anesthesia, refusal for consent, associated fractures or polytrauma and pathological fractures were excluded from this study. Patient's medical records, office notes and operative reports were reviewed for collecting pre-, peri- and post-operative data. The patients were evaluated preoperatively, at six weeks and at six month postoperatively using Harris Hip Score (HHS) and Visual analogue scale (VAS) for outcomes. The HHS was developed for the assessment of the results of hip surgery, and is intended to evaluate various hip disabilities and

methods of treatment in an adult population undergoing total hip replacement (THR) and femoral neck fractures. The HHS is a clinician-based outcome measure administered by a qualified health care professional, such as a physician or a physical therapist. The domains covered are pain, function, absence of deformity, and range of motion. The pain domain measures pain severity and its effect on activities and need for pain medication. The function domain consists of daily activities (stair use, using public transportation, sitting, and managing shoes and socks) and gait (limp, support needed, and walking distance). Deformity takes into account hip flexion, adduction, internal rotation, and extremity length discrepancy. Range of motion measures hip flexion, abduction, external and internal rotation, and adduction. There are 10 items. The score has a maximum of 100 points (best possible outcome) covering pain (1 item, 0-44 points), function (7 items, 0-47 points), absence of deformity (1 item, 4 points), and range of motion (2 items, 5 points). Successful result is defined as a post-operative increase in Harris Hip Score of >20 points+radiographically stable implant + no additional femoral reconstruction. The Observed results can be graded as Poor if scorecross legged sitting were restricted for the rest of their life. Two weeks after surgery regular medications for pain were discontinued, Sutures removed and the patient was discharged to home with a walking frame. The patients were followed up at six week, and at six months after surgery.

STATISTICAL ANALYSIS: The data was entered in excel spread sheet and then the statistical analysis was performed by using Graph-pad Prism version-4, USA. The continuous data was presented as mean and standard deviation. The categorical data was presented as actual numbers and percentages. Non- Parametric repeated measures ANOV was used to assess the difference between functional scores. A two tailed p value less than 0.05 was considered statistically significant.

RESULTS

The mean age of patients was 68.6±4.42 yrs and male: female ratio was -54 (54%): 46 (46%). The mean HHS score was 72.44±6.70 by the end of six months. The mean pain score on VAS Scale was

reduced to 2.1 ± 0.6 at six months follow-up visit. No significant complication except for pulmonary complications was seen in postoperative period but they all resolved with proper medical care by six week follow up. No patient required revision surgery. The Clinical Characters and functional outcomes were shown in tables-1 & 2 respectively.

DISCUSSION

Fracture of the femoral neck can be treated with internal fixation, unipolar or bipolar arthroplasty or total hip replacement, but each has disadvantages and the optimal treatment of these fractures remains controversial.[3] Despite good results achieved with total hip replacement, the trend in our hospital is to treat any type of intracapsular hip fracture with hemiarthroplasty. In our study all the patients underwent hemiarthroplasty and the outcomes at the end of 6 months suggest that most of the patients showed fair to good response. No patient with excellent results (Harris Hip Score >90) was observed. One of the reasons might be the shorter duration of follow up in present study. It is expected that in a longer duration of follow up these scores might increase further in view of the increasing trend in Harris Hip Score at all the scheduled follow ups. No significant complication except for pulmonary complications was seen in postoperative period but they all resolved with proper medical care by six week follow up. No patient required revision surgery. Bhandari et al[6] found that many orthopaedic surgeons felt that the short-term outcome following hemiarthroplasty was comparable with that after a THR. Early wear on the acetabular cartilage may be one explanation of the difference in hip function between THR and hemiarthroplasty in our own and previous studies.[7] Walia et al.,[8] reported the superiority of total hip replacement in terms of control of pain, however, they also highlighted certain drawbacks of total hip replacement arthroplasty in elderly patients such as instability, impaired reflexes, cognitive impairment, higher dislocation rates. Fan et al.,[9] in their study reported bipolar hemiarthroplasty to provide comparable results with total hip arthroplasty in terms of hospitalization period, general complications, joint function, pain, rate of revision and mortality. Though the present study was not a comparative study, yet it provided promising results with achievement of remarkable functional ability and pain control.

In present study no significant complication were seen in post-operative period but they all resolved with proper medical care by six week follow up. No patient required revision surgery. These results are similar to the results obtained by Sancheti et al.,[10] who also reported only bed sore as a complication arising due to intervention. Need for revision surgery has been cited in only a few studies. Laffosse et al.,[11] reported revision surgery in only one patient. However, in a study by Elmrosy et al., [12] both complication rates as well as revision rates were much higher. They reported need of revision surgery in four (9.8%) patients and complications such as stem loosening and subsidence, infection, dislocation, bleeding peptic ulcer and intraoperative fracture of the femur. The higher rate of complications and need for revision surgery might be dependent on skill level of the operating surgeon. In our opinion, the findings in present study suggests that primary cemented bipolar hemiarthroplasty is a good choice for fracture neck of femur in elderly and saves time as well as cost, has no significant complications and provides sustainable functional outcomes, hence it should be offered as the first choice of treatment to the patient. The limitation of present study is the short duration of follow up. There is scope for improvement in results as well as increase in complications with a longer follow up. The present study also Harris Hip Score and should be used as a tool for assessment of functional status of the patient.

CONCLUSION

We observed a significant change in HHS and VAS at the end of six months. Harris Hip Score (HHS) provides information on a multitude of factors, about the level of activities a patient can resume post-operatively. Fair to good scores were observed in all

the patients. Hemiarthroplasty for fracture neck of femur in elderly does provide early ambulation, good functional outcome, pain free joint with minimal complications without the need for revision surgery.

TABLE 1-PATIENT CHARECTERISTICS-

Clinical Charecteristics	Number	Percentage(%)
Age	60.6±5.2	-
Gender	54/46	
Type of Fracture		
Subcapital	39	39%
Transcervical	43	43%
Basal	18	18%
Time to hemoarthroplasty (days)	2.6±0.8	
Time to independent ambulation (days)	74±1.8	
Length of hospital stay (days)	10±1.2	
Operating Time (min)	45±8.4	
HHS Surgical outcome at the end of six months		
Excellent	0	0%
Good	46	46%
Fair	52	52%
Poor	2	2%

TABLE 2-FUNCTIONAL SCORES-

Functional Scores	Pre-operative	Post-operative After 6 weeks	Post-operative After 6 Months	P Value
HHS	26.34±6.55	58.60±7.18	72.44±6.70	< 0.0001
VAS Score	6.3±2.21	3.2±1.42	2.1±0.6	< 0.0001

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