FUNCTIONAL EVALUATION OF HEMIARTHROPLASTY IN NEGLECTED FRACTURE NECK OF FEMUR IN YOUNG ADULTS

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INTRODUCTION
Femoral neck fractures occur most commonly in elderly females. The incidence of fracture neck femur occurs in two different patient populations. Very small groups (3% to 5%) are young patients subjected to high energy trauma. The reminder occurs in elderly population and approximately 90% of these injuries are the result of simple fall from standing position.

OBJECTIVE
To assess the functional outcome of uncemented hemiarthroplasty (AMP and Bipolar) in patients under 55 years of age with intracapsular neck of femur fracture.

PATIENTS AND METHODS
16 patients under 55 years of age with the mean age of 35.5 years (range 16-55 years) with intracapsular fracture neck of femur operated between September 2010- September 2012 were undertaken for the study. The functional follow-up was done for a minimum period of 6 months. The results were assessed using Harris hip evaluation.

RESULTS
Out of 16 patients, 10 were female and 6 were male with an average age of 35.5 years. After one year of follow up 5 patients had Excellent, 8 had a good result, 1 had a fair result and 2 had a poor result. In our study all our patient had satisfactory functional result.

CONCLUSION
Patients who lead mainly a sedentary life with limited daily activities are suitable candidates for hemiarthroplasty.

KEYWORDS
HHS-HARRIS HIP SCORE.

2012 with a minimum follow up of 6 months. All patients were operated through Modified Gibson’s approach.

Limb was immobilized in Thomas splint, and antibiotic inj. cefaperazone+ sulbactum 1gm twice daily was continued for 5 days following the day of surgery. Patients were started with static quadriceps from the 1st post-operative day, knee exercises from 3rd post op day and hip exercises from 5th under supervision and guidance of physiotherapist and guarded weight bearing from the 5th post-operative day. Full weight bearing from 10 days following the day of surgery. The outcome of the patients was assessed and tabulated and the mean of the harris hip score will depict the results.

RESULTS: In the present study, 18 cases of fracture neck femur treated with hemiarthroplasty between September 2010 to September 2012. All the prosthesis was uncemented.

Of these, two cases we lost in the follow up, 16 cases were available for follow up. The follow up period ranged from 1 month to 12 months.

In our study of 16 patients with old fracture neck of femur, the average age of Age of the patients was 35.5 years and the male to female ratio was 1.6:1, with right to left ratio of 1.6:1.

81.25% of the patients had an excellent to good Harris Hip score while 6.25% of the patient had a fair result and 12.50% had a poor result. Range of motion is determined by using modified Harris hip scoring system in which 10(62.5%) patients had a score of 4 indicating good range of motion, while 6 (37.5%) had a score of 3. There was no fixed deformities in our study, 3 patients had lengthening of 1.5 cms and 2 patients had shortening of 1cm.

All patients were discharged after rehabilitated walking with walker support. Partial to full weight bearing was permitted only at 6 weeks. All of these patients achieved preinjury ambulatory status at 3 months. We had no instances of infection or dislocation in the immediate or late postoperative period.

We had a minimum follow up of 6 months in all the 16 patients. All were ambulatory and had painless hips. At the follow up 5 patients had excellent results, 8 had good, 1 had fair and 2 had poor result.

There was no incidence of stem subsidence, acetabular erosion, acetabular protrusion or heterotopic ossification in any of the patients during the follow-up period.

Case Illustrations:

Case 1:
Clinical Photos:
Case 2: 12 Months Following Austin Moore Hemiarthroplasty of left side 3 months old fracture neck of Femur.

Case 3: 6 months following Thompson prosthesis of left side of 9 months old fracture neck of femur.
DISCUSSION: We undertook the present study of 16 cases of old intracapsular fracture neck of femur treated with hemiarthroplasty (Austin/Thompson) in patients aged between 16-55 years in both the sex. The observations were made and results were analyzed. The study was also compared with the studies of other authors. Various aspects of the results have been observed and discussed in detail keeping in view the living condition of an average Indian.

AGE INCIDENCE: In the present study, the average age 35.5 for intracapsular fracture neck of femur which was more than 3 weeks old were ranging from 16-55 years.

The average age incidences reported by other series are as follows:

Table showing mean age of patients in Indian Literature who underwent Prosthetic replacement.

<table>
<thead>
<tr>
<th>Series</th>
<th>Year</th>
<th>Average age (yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahador</td>
<td>1998</td>
<td>45</td>
</tr>
<tr>
<td>Gurvinder singh</td>
<td>2005</td>
<td>33</td>
</tr>
<tr>
<td>Basant</td>
<td>2009</td>
<td>32.9</td>
</tr>
</tbody>
</table>

Table 2

Table showing mean age of patients in western Literature who underwent Prosthetic replacement.

<table>
<thead>
<tr>
<th>Series</th>
<th>Year</th>
<th>Mean Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moore</td>
<td>1957</td>
<td>60-70</td>
</tr>
<tr>
<td>Stinchfield and Cooperman</td>
<td>1957</td>
<td>72</td>
</tr>
<tr>
<td>Sarmiento</td>
<td>1963</td>
<td>77</td>
</tr>
<tr>
<td>Anderson &amp; Neilson</td>
<td>1972</td>
<td>70</td>
</tr>
<tr>
<td>Wai-Hee Lo et al</td>
<td>1994</td>
<td>72.5</td>
</tr>
<tr>
<td>John E. Kenzora et al</td>
<td>1998</td>
<td>76</td>
</tr>
</tbody>
</table>

Table 3

In the present study, 62 % of patients are in the age group between 46-55 years, which indicates that our sample is less in comparison to western studies. This indicates that, the average sample correlates with Indian studies.

SEX: In the present study, 10 patients (62.5%) were females and 6 patients were males. The female preponderance, he sex incidence reported in other series are as follows:

Table Percentage of functional results following hemiarthroplasty for the fracture neck of femur.

<table>
<thead>
<tr>
<th>Investigator</th>
<th>Year</th>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boyd and Salvatore</td>
<td>1964</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>D’ Acry and Devas</td>
<td>1976</td>
<td>47</td>
<td>40</td>
</tr>
<tr>
<td>Basant</td>
<td>2009</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>Narendra magu</td>
<td>2009</td>
<td>27</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 5

The sex incidence in Present series is similar to the reported series, we feel probably it in the hormonal imbalance post-menopausal and senile osteoporosis in elderly females.

Side of Fracture: The left hip was fractured in 10 patients of present series. This has been a subject of limited studies of fracture in left hip of their patients.

Table Reported incidence of side of fracture following Hemiarthroplasty.

<table>
<thead>
<tr>
<th>Investigator</th>
<th>Year</th>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Kumar</td>
<td>1979</td>
<td>25</td>
<td>28</td>
</tr>
<tr>
<td>Mukhejee and puri</td>
<td>1986</td>
<td>55</td>
<td>29</td>
</tr>
<tr>
<td>Bavadekar and Manelkar</td>
<td>1987</td>
<td>328</td>
<td>60</td>
</tr>
<tr>
<td>BG Dubani</td>
<td>2001</td>
<td>123</td>
<td>38.2</td>
</tr>
<tr>
<td>Essoh</td>
<td>2002</td>
<td>271</td>
<td>54.2</td>
</tr>
<tr>
<td>PS Maini</td>
<td>2003</td>
<td>16</td>
<td>31.25</td>
</tr>
</tbody>
</table>

Table 6
The difference between excellent and good results is minimal and they can be grouped together as satisfactory (good) results. In present series 81.25% of the hip hemiarthroplasty cases were classified as having a good to excellent results or satisfactory results. The other literature has reported: R Kumar\(^1\) (1979) 68%, Mukherjee and puri\(^2\) (1987) 78%, BG Dubani\(^3\) (2001) 72.3%. Saxena and Saraf\(^4\) 90.9%, our results are comparable with other series. R Kumar\(^1\) (1979) observed that the poor results (16%) were due to pre-existing medical conditions and pain following arthroplasty. Saraf and Saxena\(^5\) (1978), Bavadekar and manelkar\(^6\) (1987) and Arwade\(^7\) (1987) attributed the poor results to complications during or following surgery. We have reported 12.5% as poor in present series and observed that the poor results are found in most of the cases who had moderate to marked pain following hemiarthroplasty.

**CONCLUSION:** In our study all the patients had satisfactory functional outcome and all patients resumed to their normal daily activity. There were 31.84% excellent results and 50% good results. These 81.25% are comparable to the other series. The poor results in present series were due to pain in the hip or thigh after hemiarthroplasty. The success of the hemiarthroplasty in old fracture neck of femur depends on pre-operative planning and preparation, using neat meticulous technical sound procedures, early good results can be obtained.

Hence in a country like India and in rural areas it has been recognized that after injury, patients should be mobilized and weight bearing commenced as soon as the wound is healed to avoid complications of prolonged recumbency and immobility and to return to activity, to restore the patients to the fullest physical, mental and social capabilities. This could be achieved by hemireplacement arthroplasty and should be considered as one of the primary treatments for the old fracture neck of femur, where other procedure is also indicated.

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