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Research article

IMMEDIATE MOBILISATION WITH COMPLETE WEIGHT BEARING AFTER UNCEMENTED TOTAL HIP REPLACEMENT IN ELDERLY

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ABSTRACT

This prospective study was analyzed in 23 patients who were allowed to do immediate weight bearing after uncemented total hip arthroplasty. Immediate mobilization shortened the hospital stay and facilitated early rehabilitation of hip. Immediate mobilization was started on postoperative Day 3 rather than Day 7 without any adverse consequences to the patients. A series of 23 elderly patients of age more than 60 years, who were diagnosed with conditions such as avascular necrosis of hip, non union of fracture neck of femur, trochanteric non union and rheumatoid arthritis, underwent uncemented total hip replacement and immediate mobilization was started in our hospital. Patients were evaluated by Harris Hip Scoring Scale. All ambulated patients had painless hip and the mean Harris Hip Score was 85. There were no incidence of stem subsidence, acetabular component loosening, and heterotrophic ossification. This data concluded that early intensive rehabilitation yielded faster attainment of short-term functional milestones in fewer days.

Keywords: Uncemented total hip replacement, Elderly, Early weight bearing, Immediate mobilization, Harris Hip Score.

INTRODUCTION

Uncemented total hip replacement is commonly done in many health centres for various indications but immediate weight bearing to tolerance is not practiced in many centres. Rehabilitation is essential to minimize the disability after surgery. The main goal in treatment of avascular necrosis of hip, non union of fracture neck of femur, trochanteric non union and rheumatoid arthritis with uncemented total hip arthroplasty in mobile elderly patients is to restore the walking ability as early as possible.[1] Immediate mobilization shortened the hospital stay and facilitated early rehabilitation of hip[2]. Earlier, immediate weight bearing was thought to be inappropriate, due to absence of osseous integration of femoral stem and acetabular shell, hence only partial weight bearing was allowed for at least 6 weeks after surgery[3], but later it was found that no adverse effects due to immediate mobilization with complete weight bearing occurred after uncemented total hip arthroplasty. We report a series of 23 cases treated by uncemented total hip arthroplasty who were allowed to do immediate mobilization with complete weight bearing.

MATERIALS AND METHODS

This prospective study was initiated after the approval of the Ethical Committee of Meenakshi Medical College. Twenty three elderly patients with mean age of 65 years (range 55-85 years) were

operated by orthopaedics department in Meenakshi Medical College over two years of period from 2012 June to 2014 June. 9 cases of avascular necrosis of hip, 12 cases of non union neck of femur, 1 case of trochanteric non union and 1 case of rheumatoid arthritis were operated and treated with uncemented total hip arthroplasty. Patients were followed up for 3 months, 6 months, 12 months and then yearly. All patients had multiple Co morbidities. 20 had hypertension with diabetes mellitus, 2 had chronic renal failure and 1 had rheumatoid arthritis. All patients fell into[4] ASA (American Society of Anesthesiologist) grade III (15 patients) and ASA grade IV (8 patients). Informed consent was taken from all the patients before the surgery. Combined spinal and epidural anaesthesia was given to all patients. We used anterolateral approach, with patient in supine position. Hip replacement was performed with [5]uncemented hydroxyapetite coated stem (Smith and Nephew, USA) and reflection Cup, cross linked poly (Smith and Nephew,USA) in 11 patients and [6]mallory-head cup, arcom poly insert, proximally porous coated stem (Biomed, USA) in 12 patients . Stability in axial and rotational plane was assessed before insertion of femoral stem. Prophylactic intravenous antibiotics were used in all patients. All patients were given DVT (Deep Vein Thrombosis) prophylaxis from 1st post operative day onwards. Side turning in bed was allowed on 1st post operative day, patients were made to stand on 2nd post operative day with walker and walking was allowed with full weight bearing as tolerated, patients were discharged on 12th post operative day in walking condition after suture removal .Patients were reviewed post operatively after 4 weeks and followed by reviews at 6 weeks, 3 months, 12 months and then yearly. Clinical and radiological evaluation was done for all the patients at each follow up. Harris Hip Score used as clinical outcome measures. Radiological evaluation, including anteroposterior radiographs at 3 months, 6 months, 12 months and yearly for evaluation of [7]stem subsidence or loosening as well as to look for [8]acetabular erosion, protrusion and [9]heterotrophic ossification.

Table 1: Harris hip score

Age/Diagnosis	Harris hip score		
	6 weeks	3months	12 months
60/Rt Non Union NOF	86	90	94
67/Rt Non Union NOF	87	90	96
62/Lt Non Union NOF	88	91	96
68/AVN Lt Hip	88	92	98
65/Lt Non Union NOF	86	93	96
70/AVN Rt Hip	88	93	96
66/Rt Non Union NOF	87	92	94
70/AVN Rt Hip	88	92	98
67/Lt Non Union NOF	86	93	97
61/AVN Rt Hip	87	92	96
64/Rt Non Union NOF	88	90	96
61/RA Rt Hip	87	91	97
60/Rt Non Union NOF	89	92	96
66/AVN Rt Hip	88	94	98
70/Lt Non Union NOF	89	93	94
67/Lt Non Union NOF	87	90	94
67/Trochanteric Non Union Rt Hip	86	90	96
65/AVN Rt Hip	88	94	96
68/AVN Lt Hip	89	93	95
62/Rt Non Union NOF	89	93	97
61/AVN Lt Hip	88	91	97
65/AVN Lt Hip	88	90	96
70/Lt Non union NOF	86	92	98
65/AVN Rt Hip	88	93	97

AVN- Avascular Necrosis of Hip, NOF- Neck of Femur, RA- Rheumatoid Arthritis

RESULTS

Duration of hospital stay was 12 days (7-20 days), patients were walking with full weight bearing with walker support on the day of discharge. At 4 weeks of follow up all the patients walked without a walker with full weight bearing. There were no infection or dislocation and no incidence of DVT. All ambulated patients had painless hip and the mean [10]Harris Hip Score was 85 at 12 days of the postoperative period. The Harris Hip score was evaluated for all 23 patients at 6 weeks, 3 months and 12 months and the mean average hip score was 88 at 6 weeks, 93 at 3 months and 97 at 12 months

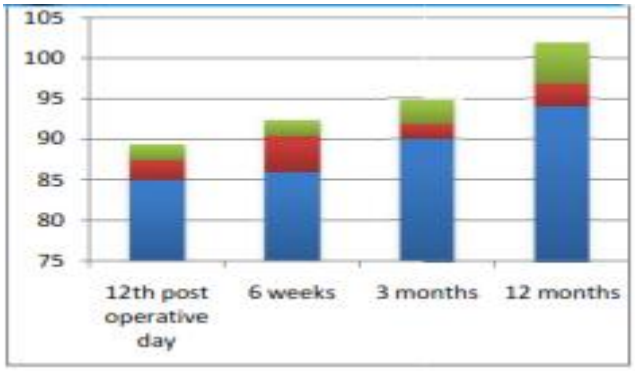

Fig 1: Progress of patients evaluated by Harris Hip Score representedbyh bar diagram

Fig 2: Pre Operative Radiograph

Fig 3: Post Operative Radiograph of patient at 6 weeks

Fig 4: Uncemented Total Hip Arthroplasty Implants

DISCUSSION

Uncemented total hip arthroplasty is done for various indications, but only partial weight bearing is practiced in many centres for 6 to 12 weeks. By partial weight bearing, functional recovery may be inhibited and muscle atrophy and loss of bone mineral density increased. In addition, [11]load on the contralateral hip and upper extremities is significantly higher when less weight is put on the operated lower limb (Rao et al. 1998).[12] Immediate weight bearing after uncemented total hip arthroplasty shortens the length of stay in hospital, reduces the risk of deep venous thrombosis (Leali et al. 2002)[13] promotes the functional recovery with less usage of ambulatory devices (Kishida et al. 2001).[14] Ritter et al. (1995) found that in growth of bone in single-stage, bilateral uncemented total hip arthroplasty was not adversely affected by weight bearing if initial stability of both the metaphysical and diaphyseal portions of the femur had been achieved. This conclusion may not have been valid, however, because of the lack of a protected weight bearing control group. [15]Anderson et al. (2001) did not find significant differences in hip extension, muscle strength, gait velocity, pain, and walking pattern 6 months after surgery between 10 patients who practiced late weight bearing and 11 patients who practiced immediate weight bearing. [16]Boden et al. (2004) in a prospective study of 20 patients who were operated with an uncemented hydroxyapetite-coated total hip arthroplasty found that immediate weight bearing had a positive effect on the bone mineral density around the stem of the prosthesis, and especially its distal part. Stem migration was also evaluated, but with conventional radiography. We found there was no migration of components after full weight bearing during the first 6 weeks postoperatively, at 3 months, and at the one-year follow up. All of our patients progressed to full weight bearing without support at 6 weeks of follow up (Fig 3).[17] Osseous Integration of components occurred in all hips without any radiolucent lines between components and the bone. All the patients experienced satisfactory pain relief and day to day activities were carried out without any difficulty.

CONCLUSION

According to this study, full weight bearing immediately after surgery as much as tolerated is justified in uncemented total hip arthroplasty.

Immediate unrestricted weight bearing after uncemented total hip arthroplasty gave good results with no complications.

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Conflict of Interest: Nil

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