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Early Mobilisation of Geriatric Intertrochanteric Fracture With External Fixator

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Abstract

This clinical study is based on 125 consecutive patients of more than 59 years of age, with fresh stable intertrohanteric fracture. All these patients were residents of the catchment area of New Delhi, primarily treated in Orthopaedics Department of Deen Dayal Upadhay Hospital, New Delhi from January 1989 to December 1992. These patients were managed by performing close reduction of fracture table and fixing the fracture by an external fixator. Early operation with immediate weight bearing after fixation was the usual procedure adopted. Each patient was scheduled to mobilization in the department of orthopaedic and rehabiliation as an out patient or at home. The follow-up ranged from 6 months to 2 years. The results are encouraging with few minor complications.

Indroduction

Inter-trochanteric fracture of the femur is the most common injury of geriatric age group. A reasonable return of function following this fracture in elderely patient can only be achieved by early, definitive stabilization of the injured extermity and rapid mobilisation, Conversely, prolonged immobilization of the patient through the use of conservative fracture management which places the patient at risk of pulmonary decompensation, venombolic disease, decubitus ulcer formation and further generalised musculo-skeletal deterioration from which recovery becomes unlikely. In recent years the treatment of inter-trochanteric fracture has improved considerably as result of advancement in design of internal fixation devices and understanding of the biology and mechanics of fracture healing in osteoporotic bone. Although open reduction and internal fixation has reduced the mortality and morbidity associated with this fracture, but because of many concurrent illnesses present at this age group this mode of treatment is not always possible. So an ideal surgical procedure should be simple to minimize operation time and blood loss. We are presenting our results of managing this fracture by a simple technique of external fixation and early mobilisation thereafter. This procedure is done under local anaesthesia and does not require complex instruments or implants. Our aim is to mobilize these patient in the hospital as early as possible and rehabilitate them in their pre-fracture habitat i.e. at home. The patients may face few problems at home, but at the same time they gain emotionally in the process of becoming indepedent and gaining self confidence.

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Material & Methods

All the 125 cases taken for the study were throughly examined and necessary laboratory investigations were done to assess their renal, cardiac & metabolic status. The patients were divided into following three groups according to their medical history and physical status on admission. Group-A included patients with no known diseases other than the fracture hip. Group B included patients who had additional diseases

not likely to impede rehabilitation. Group-C included patients with additional diseases or impairments which would probably affect rehabilitation. All these patients were sucjected to the following operative procedure and mobilisation programme.

Operative Technique

As soon as patient's general condition is found to be stable, he is taken to operation theatre. Just before operation some sedative and pain killer is given to decrease apprehension and pain. Patient is then placed supine on the fracture table. Fracture is reduced by gentle traction and abduction in moderate external rotation followed by gentle internal rotation. Reduction is checked by antero-posterior and lateral roentgenograms or by the image intensifier. Once reduction is acceptable two or three 4.5 mm diameter schanz pins are passed in the neck portion and two or three 4.5 mm diameter cortical threaded pins in the shaft fragment. The clamps and rod of AO's Tubular design are attached to these pins.

Final X-Ray film is taken and minor adjustment can be done at this time.

Mobilization and Rehabilitation Schedule

On the very first day the patient is assisted in sitting and turning. Chest physiotherpy and quadriceps drill is started simultaneously. In next few days knee bending and quadricep building exercises are started, patient is encouraged to stand. Once patient is confident to stand he is assisted in walking with the help of quatraped. A team of Nursing Staff, Physiotherapist and Occupational therapist helps the patients in re-establishing ambulation and normal activities of living such as dressing, toileting and personal hygiene. The importance of doing as much as possible for themselves is emphasized to both patient and their relatives. The ability to perform such basic functions as early walking with an aid and managing personal hygiene are taken as good prognostic indicators for rehabilitation later.

Observations & Results

In our series of 125 patient the age ranged from 50 years to 95 years with the mean age of 68 years. Out of these 72 were males and 53 females. (Table-I). On the basis of history, examination and laboratory investigation they were divided among three diagnostic groups ranging from A for normal to C for severely diseased. At the time of admission there were 27 patients in Group A, 56 in Group B and 42 in Group C. There were total 19 deaths in our series, out of which 4 were during the hospital stay. (Table-II). The causes of death were Cardio-Vascular disease in 12 patients, stroke in 2, pneumonia in 3 and cause of death could not be known in 2 cases. Age and general medical condition were very important factors in rehabilitation. The range of movement attained in Group A and B patients and those less than 80 years of age was almost 80% at 4 months as compared to 60% in others. At 2 weeks post-surgery 100 patients were able to walk with the help of quadraped and at 4 months 112 could walk with or without support (Table-III). Similarly at the time of discharge 89 patients managed dressing up and personal hygiene. The number increased to 101 at 4 months and 103 at 12 months. Some of the more demanding activities like sitting cross legged and squatting during the first 4 months were difficult but few of our patients could manage these activities. The complications observed by us are shown in table V. There is a high incidence of superficial pin tract infection and knee stiffness, However with the aid of proper dressing and physiotherapy the effect of this on the final result is insignificant.

Table I
Age and Sex Distribution

Age	Male	Female	Total
50-64 Years	19	21	40
65-79 Years	42	26	68
More than 80 Years	11	6	17
Total	72	53	125

Table II
General Medical Condition and Mortality Observed in our Series.

General Medical Condition	No. of Patients on Admission	No. of pts. at time of discharge	No. of death before discharge	Total No. fo death 4 month	Total No. of death 4 months.
A	27	27	0	1	1
B	56	55	1	2	6
C	42	39	3	5	12
Total	125	121	4	8	19

Table III
Ability to walk Quatraped or Better.

Ability to walk	At 2 weeks post surgery	At the time of discharge	After 4 months	After12 months
Yes	100	115	112	104
No	21	6	5	2

Table IV
Ability to Manage normal Activities of Daily Living (ADL)

Ability to manage ADL	At 2 weeks Post Surgery	At time of Discharge	After 4 months	After 12 months
Yes	84	89	101	103
No	37	32	16	3

Table V
Complications Observed in our Series

Complications	No. of patients	Percentage
1. Inability to achieve reduction	2	1.6%
2. Superficial pin Tract infection	22	17.6%
3. Deep infection & OM	2	1.6%
4. Unacceptable loss of reduction	3	1.4%
5. Aseptic pin lossening and migration	12	9.6%
6. Quadricepadhesion and Knee stiffness	80	64.0%
7. Hip stiffness	10	8.0%
8. Implant failure	0	0

Discussions

Elderly patients are best served by rapid definitive fracture care aimed at early restoration of mobility and function. In most cases these patients are healthiest on the day of injury and are in best operative condition for Surgery at that time. Nevertheless, many concurrent illnesses are often present which make a major surgical procedure very risky or impossible. So, a simple surgical procedure which will put minimal physiological stress upon these patients, is desirable, keeping this goal in mind, we have managed 125 patients of Inter-trochanteric fracture, having a mean age of 68 years. After stabilising the fracture with an external fixator a programme for early mobilization in the hospital and rehabilitation at home was developed in co-operation with the physiotherapy Deptt. Most of these patients (66.4%) were suffering from some concurrent illness at the time of admission, Our mortality of 16% at one year is comparable with the best results reported for open reduction and internal fixation. About 96% of the patients returned home directly after post-operation mobilization period of usually 2-3 weeks in the hospital. (fig. II) At four month 89% of the patients were able to walk with or without the help of some aid. 80% of the patients were able to do normal activities of daily living. At one year all except one out of hundred six alive patients,

were ambulatory and 82 were able to do house hold activities. So 80% of our patients regained near pre-fracture functional status at four month after the fracture. Inspite of high percentage of early complication like pintract infection and knee stiffness the overall result is highly satisfactory.

This study highlights the advantages of adopting a simple operative technique and importance of an early mobilization and rehabilitation by close co-operation between the orthopaedic surgeion, the physiotherapist, the patient and his or her relative. By this means, a continuity of care and early permanent independence can be achieved for elderly hip-fracture patients and institutionalised rahabilitation can be reduced with benefit for both the patient and society.

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