

Austin-moore Hemiarthroplasty; The Enugu Experience
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Abstract**BACKGROUND:**

Femoral neck fracture is the commonest fracture among the elderly who frequently have co-morbid medical conditions. It commonly follows trivial falls at home^{1,2,3}. Prosthetic replacement with Austin Moore prosthesis is one of the treatment options open to Orthopaedic Surgeons in this age group who need to be mobilised as early as possible to prevent the complications of prolonged immobilization^{2,4,5}. This study shows our experience with Austin Moore hemiarthroplasty [AMH] as a treatment option for femoral neck fractures over a 10 year period.

METHOD: Hospital records of 46 out of 59 patients who had AMH in NOHE between 1995-2004 (10 year period) were reviewed retrospectively. The 13 patients who had incomplete records were excluded

RESULTS: The age range of the patients was 26-99yrs with 67.2 yrs as the mean. There was a slight female to male preponderance [F:M = 1.1:1]. Most of the patients clustered between 61 and 80yrs. Majority presented late [76%], with only 2 patients presenting within 24hrs of injury. Fracture neck of femur was the commonest indication for AMH[89.1%] with domestic falls and RTA having 54.3% & 32% respectively as aetiological factors. Hypertension was the most prevalent co morbid medical condition [76%]. Majority of the patients had preoperative traction, 58% (skin: 32.6%, skeletal 26.1%) while general anaesthesia was used in 63% of patients. Blood transfusion was common; 87.1. 58.7% of patients were mobilized within 2-3 wks of operation while 26.9% were delayed for more than 3 wks. 2 patients[4.3%] died while on admission. 76.1% were mobilized initially on Zimmer frames, 13.0% on crutches, 6.5% on wheel chair. 80% were able to walk with walking stick[cane] in 6 weeks while 87% achieved this in 12 weeks.

Follow up time of patients was poor as patients default frequently after few visits. Wound infection was the commonest complication 26.1%, mostly treated by dressing and antibiotics. 13.0% were hospitalized for 2-3 weeks, 36%-4-6wks while 50% stayed beyond 6 wks. Mortality rate was 4.3%[2].

KEY WORDS: Ausin Moore Hemi arthroplasty; fracture neck of femur; Elderly patients, Enugu.

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INTRODUCTION

Since 1940, when Austin Moore inserted the first vitallium prosthesis to replace the proximal femur, the procedure has revolutionised the treatment of intra capsular femoral neck fractures in older patients^{1,6}. There is a near consensus on its use as against internal fixation, total hip arthroplasty [THA] and girdle stone^{7,8}. This is because in these patients who are frequently old and frail, retaining the femoral head leads to increased risk of fracture displacement, non-union and avascular necrosis, while THA increases morbidity & operation time⁹. AMH also allows early mobilization to prevent the complications of prolonged immobilization^{2,4}.

In this study, we present the pattern and outcome of AMH as a treatment option in fracture neck of femur among elderly patients in Enugu.

PATIENTS AND METHODS

Over a 10 yrs period; 1995 to 2004, 59 patients were admitted and treated by AMH. The case notes were reviewed and 46 patients were included in the study. The remaining 13 patients had incomplete records and were therefore excluded. Indices reviewed include age, sex, time between injury and presentation, limb involved, aetiology and indication for AMH; co-morbid conditions, preoperative traction, method of anaesthesia, blood transfusion, method and time of mobilization were also reviewed. Also the complications, duration of hospitalization and mortality rate were all noted.

RESULTS

The ages ranged from 26-99 yrs with slight female preponderance. F:M=1.1:1. The mean age was 67.2yrs with a mode of 70.5. The age cluster was between 61 & 80yrs. Majority of the patients presented late, 76%(35) with only 2 patients presenting within 24hrs of injury. The right hip was more involved 52%(24), left hip 46% (21) and 2% (1) bilaterally. Fracture of neck of the femur was the commonest. Others include fracture dislocation of femoral head, 4.3%[2], avascular necrosis, 2.2% (1), Per-trochanteric fractures, 2.2%(1), and painful Girdlestone 2.2%(1). Domestic falls accounted for 54.3%(25) of the hip injuries, RTA caused 32%(15), while CVA had 4.3% (2), fall from height and seizures were 2.2%(1) respectively. (Tables I, II, III)

Table I

AGE RANGE	NO	%
<40YRS	2	4.4
41-50	3	6.5
51-60	8	17.4
61-70	13	28.3
71-80	13	28.3
81-90	6	13.1
91-100	1	2.2
	46	100

Table II

INDICATION FOR AMH

PATHOLOGY	NO	%
FRACTURE NECK OF FEMUR	41	89.1
AVASCULAR NECROSIS	1	2.2
PERTROCHANTERIC FRACTURE	1	2.2
FRACTURE DISLOCATION OF FEMORAL HEAD	2	4.3
PAINFUL GIRDLE STONE	1	2.2
TOTAL	46	100

Table III

AETIOLOGICAL FACTORS FOR INJURIES

AETIOLOGY	NO	%
DOMESTIC FALLS	25	54.3
RTA	15	32.6
FAIL FROM HEIGHT	1	2.2
CVA	2	4.3
SEIZURES	1	2.2
UNKNOWN	2	4.3
TOTAL	46	100

Co-morbid medical conditions was prevalent in the population ,76.1 %(35) most of the patients were hypertensive, 7 patients were diabetic, 6 of whom were also hypertensive. Other condition include asthma, parkinsonism, cataract, brain tumour BPH, rheumatoid arthritis, mitrial valve disease, melanoma, CVA, and

traumatic hemiplegia all accounted for 24.9% (11). Majority of the patients had preoperative traction 58%(27);[skin traction 32.6%(15) while skeletal traction was 26.1%(12)]

General anaesthesia was used in 63%(29) of the patients and 37% (17) had spinal. Most of the patients who had spinal anaesthesia were hypertensive. Use of blood was common. 87.1% were transfused, 20% of whom had more than 2 units of blood. This group had pre op PCV of less than 30%.

Early mobilization was achieved in 58.7% within 2-3 wks of operation while 26.9% were delayed for more than 3wks. 2 patients (4.3%) who died on admission were not mobilized. A good majority, 76.1% were mobilized on zimmer frames, 13.0% on crutches, 6.5% on wheel chair. Cane mobilization was achieved by 80% of the patients in 6 weeks while 87% achieved same in 12 weeks.

Complications encountered included wound infection 26.1%(12), , dislocation,9% (5) ,ARF 4.3%[2], pressure sores 4.3%(2) , Sciatic Nerve palsy 2.2% (1), thrombotic CVA, 2.2% (1) ,sciatic nerve palsy 2.2%[1] and Death 4.3%. Wound infection was treated by dressings, and antibiotics while dislocations had MUA, removal or revision of the implant.

13.0% were hospitalized for 2-3 wks, 36% for 4-6 wks while 50% stayed beyond 6wks. Mortality rate was 4.3% (2) .

DISCUSSIONS

Femoral neck fracture is the commonest fracture among the elderly and commonly follows trivial falls at home ^{5,10} We demonstrated that fracture neck of femur was the most frequent indication for AMH [89.1%] while femoral neck fracture dislocation accounted for 4.3%; with domestic falls as the commonest aetiology 54.3%. This correlates with literature reports that AMH is the choice method of treatment for displaced fracture neck of femur among old and frail patients leaving THA for more active and slightly younger patients ^{7,11} .

Dinah reported that 90% of patients with hip fractures requiring AMH were over 65yrs of age. In our study the mean age was 67.2yrs with only 10% being less than 50yrs. 15% were 80yrs and above. This is in line with an earlier study on infection rate of AMH done 15yrs ago ¹¹ .

In western literatures overwhelming majority of the aetiology of fracture neck of femur is trivial falls at home or institutions⁹. We however observed 54.3% for domestic falls and 32.6% for RTA. This might be explained by the fact that harsh economic conditions compel elderly people in our environment to continue in bread winning ventures while their counterparts in developed world are either enjoying their retirement at home or in institutions. The lower incidence of Osteoporosis and higher bone mass in negroes (age for age) may also be a factor¹⁰.

The slight female preponderance; (F :M =1.1:1] in our study is also at variance with western finding of 1:3.6 (Dinah et al). The reason for this is unclear; though similar finding have been published in studies among African and Asian populations¹². Again the rather large proportion of RTA as aetiological factor as well as the large male incidence may be important as men are bread winners, generally more active and take greater risks even in old age. Senile osteoporosis is also known to be commoner in females than in males¹¹.

Late presentation of traumatized patients to hospital has continued to generate concern among traumatologists and other stake holders^{14,15}. In this study only 4.4% of the study population presented within 24hrs of injury the optimal time for operative treatment³. 76.1% presented after 4 weeks. Poverty, non-functional National Health Insurance Scheme, lack of awareness and patronage to traditional bone setters have been identified as contributory factors to this^{14,15}.

There is dearth of information in literature report on which side of the limb is more frequently involved in Austin moore hemiarthroplasty.

In our study the right hip was more frequently replaced, [52%] than the left [46%] and 2% bilaterally. It is possible that since most people are right handed, they fall with the right side in an effort to regain balance.

About 58.7% of our study subjects had either skin or skeletal traction (32.6% & 26.4%) prior to AMH while 41.3% had none. This is probably because following delayed presentation muscles around the hip go into spasm pulling up the femur. Some of the patients had attempted weight bearing on the limb for some weeks which helps in proximal migration of the femur leading to shortening. These therefore require traction to restore limb length and pull down the femur to allow reduction of the prosthesis after insertion.

Comorbid condition is a major factor contributing to morbidity & mortality of AMH patients such that hip fracture has been described as a major public health problem in addition to huge financial and economic burden to both public and family resources^{16,17,18}. Only 46% survive for more than 2yrs in studies where follow up culture is good¹¹. In 76% (35) of the patients we reviewed had comorbid medical conditions, 74.3% (26) of whom were hypertensive. There was Diabetes mellitus in 7 patients, six of whom were also hypertensive.

The method of anesthesia among the patients was general anaesthesia [63%] while 37% had spinal anesthesia. Choice of anesthesia is critical among these elderly and often frail patients with cervical vertebral osteoarthritis tenous cardiovascular reserve and respiratory system with chronic obstructive airway disease. The reason for the prevalence of GA was not obvious.

Blood transfusion is one of the areas of surgical controversy currently, what with HIV/AIDS pandemic, Jehovah's witnesses increasing opposition and the biotechnological breakthroughs in the field of blood alternatives²⁰. 87% of the patients in our study received blood transfusions with 20% receiving more than 2 units. These had preoperative PCV of less than 30%. This extensive use of blood can be accounted for by the presence of comorbid condition and poor nourishment among majority of the elderly leading to anaemia.

Early mobilization has been emphasized in literature to prevent complications like DVT, Orthostatic pneumonia, and pressure sores²¹. 58.7% (27) of the patients were mobilized within 1-3wks of operation, 23.9%(11) after 3wks while 4.3% (2) could not be mobilized.

We discovered unacceptably high rate of infection[32.6%]. This is contrary to 1 -10% rates quoted in literature^{9, 18, 21}. this is also lower than 15% rate in an earlier study, also in Enugu²². Further study is needed to exhumate the reason for this. However the progressive deterioration in public hospitals over the years must be contributory. This high rate contributed to prolonged hospitalization as only 13% were discharged within 2-3wks of admission, 36% stayed for 4-6wks while 50% were hospitalized for more than 6 weeks. This duration is unacceptably high especially among these patients whom emphasis on early mobilization & discharge to allow return to home environment is strongly emphasized⁵.

CONCLUSION & RECOMMENDATIONS

AMH is an effective means of treating fracture neck of femur in the elderly in our environment since it allows them early pain-free ambulation despite the age of the patient and the co-morbid conditions. Late presentation account for the high morbidity and prolonged hospitalization in our environment. Much need to be done to educate the public on the need for early presentation for optimal results.

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